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American Foundryman

A PUBLICATION PRESENTING ASSOCIATION AND CHAPTER ACTIVITIES

Pig Iron—From Ladle to Casting Machine (Photo courtesy Wisconsin Steel Co.)

Tentative Schedule for New York Convention, See Page 2—1941 Meetlists, See Page 5—Metropolitan Chapter Convention Committees, See Page 8—1940 Pattern Contest Resume, See Page 13.

April
1941

Pattern Maker's Relation to the Foundry

TO THE initiated the Foundry Industry may be compared to a circus. Certain experiences within the foundry and allied industries are at times humorous, funny, serious and may in some instances even be tragic.

The foundry is the big tent of the casting industry. Its allied industries the side shows. Last year another of these side shows, the patternmaking division, was added as a part of the A.F.A.

To many the patternmaking industry seems an unnecessary expense, or necessary evil; yet in the final analysis we may set up in its defense that familiar slogan of many that "spending is saving." It is the spending in the pattern end that has made possible the savings witnessed in mass production.

The probable reason for the patternmaker's reputed status is that often he has never associated with or met the foundryman on common grounds and so has never had a chance to become acquainted with his sparring partner or his many problems encountered in the foundry industry.

Every job in patternmaking, as in the foundry, challenges the ingenuity, resourcefullness, initiative and experiences of each individual concerned with it. Because of this condition and since there are a number of specialized branches of patternmaking of which one may have a greater appeal to an individual than another, a store of knowledge is acquired by him in his chosen field. If this knowledge and experience could be accumulated, catalogued, and written up in easily understood language, and made available to those interested, the patternmaking and foundry industries could more readily meet the competition of encroaching industries, i. e. die and permanent mold casting, welding, etc.

It is with this thought in mind that the Patternmaking Division of the A.F.A. was organized. Our members are urged to contribute a free exchange of information on pattern problems as is carried on by our foundry members.

Vaughan Reid

VAUGHAN REID, Chairman
Patternmaking Division, A.F.A.

Vaughan Reid, chairman of the A.F.A. Patternmaking Division, is president, City Pattern Works, Detroit. In the Division's work he is ably assisted by Frank Cech, Cleveland Trade School, as vice chairman, with several of the outstanding pattern men as members of the Division's advisory committee. The Division will do much to promote the interests of the patternmakers in the work of the Association as a whole.

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American Foundryman

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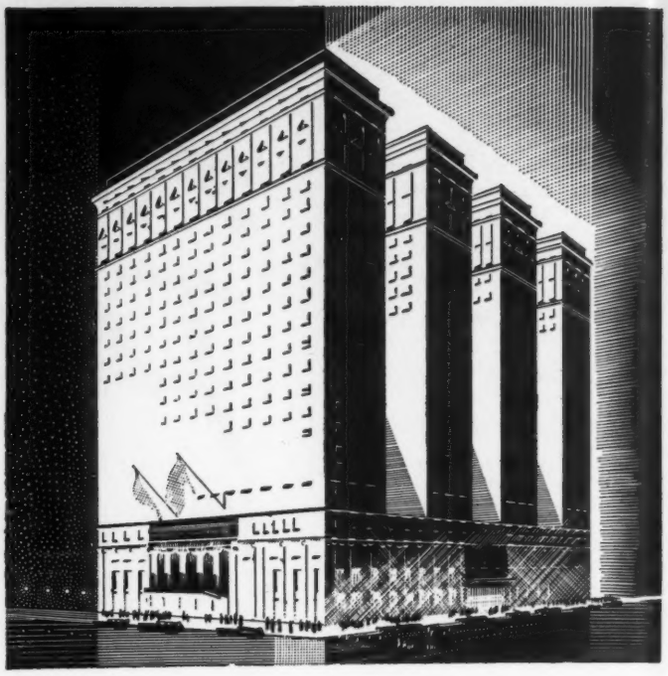
New York Convention Program Takes Form



THE PROGRAM COMMITTEES preparing for the annual convention schedule, have developed what undoubtedly will prove one of the most interesting series of papers in Association history. The tentative schedule, given below, presents an exceptionally well balanced program, with papers of direct interest to any member each day. The malleable and non-ferrous divisions have concentrated their special technical meetings in the first two days, while the steel and gray iron divisions feature the last two days.

All sessions will be held at the Hotel Pennsylvania, with the Metropolitan Chapter host to this, the first convention to be held in New York City since 1905.

National Figures to Address Management Sessions

Never before has such a noted group of nationally recognized authorities been secured for the management sessions of the A.F.A. convention as those who have been scheduled for the special meetings at the New York convention. This list includes the following:

Glenn Gardiner, Forstmann Woolen Co., Passaic, N. J., and The Elliott Service Co., New York, who will address the foreman training section on *"The Foreman in the National Defense Program.*

Phil Carroll, Jr., New York, with an address on *"Practical Time Study Measurement for Foundry Operation."*

A. L. Kress, National Metal Trades Association, Chicago, who will talk on *"Job Evaluation and Merit Rating."*

W. F. Patterson, Chief of Apprenticeship, Division of Labor Standards, Washington, D. C., who will speak on *"Apprentice Training and Defense Work."*

D. E. Cummings, Director, Industrial Hygiene, University of Colorado, Denver; Roger Williams, Asst. Director, Inspection and Safety Dept., State Insurance Fund, New York, and Jas. R. Allan, International Harvester Co., Chicago, speakers before the *Foundry Safety and Hygiene* session.

At the annual dinner, Dr. Alan Stockdale, National Association of Manufacturers, New York City, will give the main address.

These speakers, with many others on technical developments, insure that the 1941 convention will be outstanding in Association history.

Tentative Schedule — 45th Annual Convention Sessions

Monday, May 12

9:00 A. M.—Registration.

10:00 A. M.—Annual Sand Control Shop Course
(Session No. 1).
Chairman, D. Frank O'Connor, Walworth Co., Boston, Mass.
Subject, *Non-Ferrous Foundry Sand Control.*

10:00 A. M.—Foundry Refractories
Chairman, J. A. Bowers, American Cast Iron Pipe Co., Birmingham, Ala.
Some Observations on Malleable Furnace Refractories, by J. A. Kayser, Laclede-Christy Clay Products Co., St. Louis, Mo.
Firestone as a Cupola Refractory, by F. J. Wurscher, Acme Steel & Malleable Works, Buffalo, N. Y.
Electric Furnace Refractories, by C. A. Brashares, Harbison-Walker Refractories Co., Pittsburgh, Pa.

11:30 A. M.—Annual Gray Iron Foundry Shop Practice Course
(Session No. 1).
Chairman, John Grennan, University of Michigan, Ann Arbor, Mich.
Discussion Leader, Donald J. Reese, International Nickel Co., New York City.
Subject, *Cupola Practice and Equipment.*

2:00 P. M.—Malleable Founding
Chairman, D. P. Forbes, Gunite Foundries Corp., Rockford, Ill.
Graphitization of Cementite in Cupola White Iron, by N. A. Ziegler, W. L. Meinhart and A. J. Deacon, Crane Co., Chicago, Ill.
The Velocity of Conversion of Austenite to Ferrite and Cementite, by H. A. Schwartz and M. K. Barnett, National Malleable & Steel Castings Co., Cleveland, Ohio.
Flame Hardening of Malleable Iron, by Stephen Smith, Air Reduction Sales Co., New York City.

2:00 P. M.—Non-Ferrous Founding
Gating and Risering Non-Ferrous Castings, by R. R. Clarke, General Electric Co., Erie, Pa.
An Experiment in Efficient Crucible Melting, by G. K. Eggleston, Barnes Mfg. Co., Mansfield, Ohio.
Effects of Furnace Atmospheres in Non-Ferrous Melting, by J. M. Kelly, Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.

2:00 P. M.—Foundry Safety and Hygiene

Chairman, E. H. Ballard, General Electric Co., West Lynn, Mass.

Speakers: D. E. Cummings, Director, Div. of Industrial Hygiene, Dept. of Medicine, University of Colorado, Denver, Colo.

Roger Williams, Asst. Director, Inspection & Safety Service Dept., The State Insurance Fund of New York.

Jas. R. Allan, Asst. Mgr., Industrial Engineering & Construction Dept., International Harvester Co., Chicago, and chairman of A.F.A. Committee on Accident Prevention and Hygiene.

3:00 P. M.—Chapter Delegate Conference

Presiding, H. S. Simpson, Vice President, American Foundrymen's Association.

4:00 P. M.—Foundry Costs

Chairman, R. L. Lee, The Liberty Foundry, Inc., Wauwatosa, Wis.

Foundry Budgeting, by E. C. Bumke, Oliver Farm Equipment Co., South Bend, Ind.

Cost Committee Report on Classification of Cost Divisions

4:30 P. M.—Annual Lecture Course

(Session No. 1).

Core Practices and Theories.

Lecturer, H. W. Dietert, Harry W. Dietert Co., Detroit, Mich.

7:00 P. M.—Chapter Officers' Dinner

7:00 P. M.—Engineering Instructors' Dinner

Presiding, F. G. Sefing, International Nickel Co., New York City, and chairman, A.F.A. Committee on Cooperation with Engineering Schools.

A University Course in Foundry Control Methods, by Fulton Holtby and H. F. Scobie, University of Minnesota, Minneapolis, Minn.

The Foundry Industry and the Engineering Graduate, by R. F. Harrington, Hunt-Spiller Mfg. Co., Boston, Mass.

Tuesday, May 13

9:30 A. M.—Annual Sand Shop Control Course

(Session No. 2).

Chairman, J. H. Lansing, Malleable Founders' Society, Cleveland, Ohio.

Discussion Leader, D. F. Sawtelle, Malleable Iron Fittings Co., Branford, Conn.

Subject, *Malleable Foundry Sand Control.*

10:30 A.M.—Non-Ferrous Founding

Welding Aluminum Castings, by F. T. McGuire, University of Notre Dame, Notre Dame, Ind., and G. E. Stoll, Bendix Products Div., South Bend., Ind.

Magnesium Foundry Alloy Practice, by M. E. Brooks and A. W. Winston, Dow Chemical Co., Midland, Mich.

Silicon-Iron Bronzes, Their Foundry Qualities and Physical Constants, by E. G. Jennings and Harold J. Roast, Canadian Bronze Co., Montreal, Que.

Aluminum-Copper-Magnesium-Zinc Casting Alloys, by L. W. Eastwood and L. W. Kempf, Aluminum Co. of America, Cleveland, Ohio.

10:30 A. M.—Malleable Founding

Malleable Iron in the Defense Program, by J. H. Lansing, Malleable Founders' Society, Cleveland, Ohio.

Observations on the Duplexing of Malleable Iron, by G. A. Schumacher, Albion Malleable Iron Co., Albion, Mich.

10:30 A. M.—Gray Iron Founding

Gating and Risering for High Pressure Work, by H. H. Judson, Goulds Pumps, Inc., Seneca Falls, N. Y.

Effects of Moisture and Preheating on Cupola Blast, by J. T. Eash and R. E. Smith, International Nickel Co., Bayonne, N. J.

Melting in the Cupola—A Summary of Certain Papers on Combustion Theories, by S. C. Massari and R. W. Lindsay, Association of Manufacturers of Chilled Car Wheels, Chicago, Ill.

10:30 A. M.—Apprentice Training

Chairman, James G. Goldie, Cleveland Trade School, Cleveland, Ohio.

Apprentice Training in the Defense Program, by W. F. Patterson, Chief of Apprenticeship, Division of Labor Standards, Washington, D. C.

Related Instruction for the Foundry and Pattern Shop Apprentice—A Symposium:

(a) *What May Be Taught the Foundry Apprentice as Related Foundry Instruction,* by A. L. Armantrout, Carnegie-Illinois Steel Corp., Chicago, Ill.
(b) *What May Be Taught the Foundry Apprentice as Related Pattern Instruction,* by K. F. Ode, The Falk Corp., Milwaukee, Wis.

(c) *What May Be Taught the Pattern Apprentice as Related Pattern Instruction,* by Frank C. Cech, Cleveland Trade School, Cleveland, Ohio.

(d) *What May Be Taught the Pattern Apprentice* as *Related Foundry Instruction* (Speaker to be assigned).

Jobs in the Foundry, by A.F.A. Committee, chairman A. H. Wornom, Newport News Shipbuilding & Dry Dock Co., Newport News, Va.

12:30 P. M.—Malleable Division Round Table Luncheon Discussion

Chairman, D. P. Forbes, Gunite Foundries Corp., Rockford, Ill.

Discussion Leader, J. H. Lansing, Malleable Founders' Society, Cleveland, Ohio.

12:30 P. M.—Non-Ferrous Division Round Table Luncheon

Chairman, C. V. Nass, Fairbanks Morse & Co., Beloit, Wis.

Causes of Porosity and Leakage in Non-Ferrous Castings, by A. H. Hesse, Naval Research Laboratory, Anacostia Station, Washington, D. C.

2:00 P. M.—Job Evaluation and Time Study

Chairman, F. E. Wartgow, American Steel Foundries, East Chicago, Ind.

Job Evaluation and Merit Rating, by A. L. Kress, National Metal Trades Association, Chicago, Ill.

Practical Time Study Measurements for Foundry Operation, by Phil Carroll, Jr., New York City.

2:00 P. M.—Sand Research—Steel Foundry Sands

Progress Report on Investigation of High Temperature Properties of Steel Sands, by J. R. Young, Cornell University, Ithaca, N. Y.

Some Properties of Foundry Sands at High Temperatures, by G. W. Ehrhart, Cornell University, Ithaca, N. Y.

Synthetically Bonded Steel Molding Sands, by R. E. Morey and H. F. Taylor, Naval Research Laboratory, Anacostia Station, Washington, D. C.

Report of Committee on Foundry Sand Research.

3:30 P. M.—Annual Gray Iron Foundry Shop Course

(Session No. 2).

Chairman, R. F. Hine, Studebaker Corp., South Bend, Ind.

Discussion Leader, E. J. Carmody, Chas. C. Kawin Co., Chicago, Ill.

Subject, *Gating and Risering.*

4:30 P. M.—Annual Lecture Course

(Session No. 2).

Core Practices and Theories.

Lecturer, H. W. Dietert, Harry W. Dietert Co., Detroit, Mich.

7:00 P. M.—Apprentice Supervisors' Dinner

Presiding, James G. Goldie, Cleveland Trade School, Cleveland, Ohio.

Wednesday, May 14

9:30 A. M.—Annual Sand Control Shop Course
(Session No. 3).
Chairman, E. E. Woodliff, Harry W. Dietert Co., Detroit, Mich.
Discussion Leader, C. W. Thompson, New Jersey Silica Sand Co., Millville, N. J.
Subject, *Gray Iron Shop Control.*

10:30 A. M.—Annual Business Meeting and Awards Presentation
Presiding, President L. N. Shannon, Stockham Pipe Fittings Co., Birmingham, Ala.
President's Annual Address.
Reports of Officers.
Presentation of Awards.
Awards Address, by S. Wells Utley, Detroit Steel Castings Co., Detroit, Mich., and Past President, American Foundrymen's Association.

1:00 P. M.—Steel Division Luncheon
Presiding, R. S. Munson, Atlantic Steel Castings Co., Chester, Pa.

2:00 P. M.—Sand Research
Chairman, W. G. Reichert, American Brake Shoe & Foundry Co., Mahwah, N. J.
Dry Sand Molding Procedure for Heavy Castings, by W. A. Hambley and A. Lebesh, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Testing Foundry Sands and Its Coordination with Molding Results, by J. J. Boland, Griffin Wheel Co., Chicago, Ill.
Clay Slurry Additions for Molding Sand Rebonding, by R. H. Mooney, Saginaw Malleable Iron Div., General Motors Corp., Saginaw, Mich.
Reproducibility of Tests of Foundry Sands, by Stanton Walker, National Industrial Sand Association, Washington, D. C.

2:00 P. M.—Patternmaking
Chairman, Vaughan Reid, City Pattern Works, Detroit, Mich.
Co-Chairman, Frank C. Cech, Cleveland Trade School, Cleveland, Ohio.
Cooperation Between the Pattern Shop, the Engineer and the Foundry, by E. J. Brady, Western Foundry Co., Chicago, Ill.
Use of Tin Forms in Molding Practice, by W. A. Smith, Smith-Richardson Mfg. Co., Geneva, Ill.

2:00 P. M.—Foreman Training
Foreman Training for the Defense Program, by Glenn Gardiner, Forstman Woolen Co., Passaic, N. J., and Elliott Service Co., New York City.

2:30 P. M.—Steel Founding
Converter Developments, by A. W. Gregg, Whiting Corp., Harvey, Ill.
Use of Models in Improving Steel Casting Practice, by S. W. Brinson, Norfolk Navy Yard, Portsmouth, Va.
Report of Committee on Heat Treatment of Steel Castings.

3:30 P. M.—Annual Gray Iron Foundry Shop Course
(Session No. 3).
Chairman, Kenneth H. Priestley, Eaton-Erb Foundry Div., Eaton Mfg. Co., Vassar, Mich.
Discussion Leader, A. E. Rhoads, Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Mich.
Subject, *Electric Furnace Melting in the Gray Iron Foundry.*

4:30 P. M.—Annual Lecture Course
(Session No. 3).
Core Practices and Theories.
Lecturer, H. W. Dietert, Harry W. Dietert Co., Detroit, Mich.

6:00 P. M.—Annual A.F.A. Dinner
Address by Dr. Allen A. Stockdale, National Association of Manufacturers, New York City.

Thursday, May 15

9:30 A. M.—Annual Sand Control Shop Course
(Session No. 4).
Chairman, D. L. Parker, General Electric Co., Everett, Mass.
Discussion Leader, W. G. Reichert, American Brake Shoe & Foundry Co., Mahwah, N. J.
Subject, *Steel Sand Shop Practice.*

9:30 A. M.—Annual Gray Iron Foundry Shop Course
(Session No. 4).
Chairman, W. A. Hambley, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Discussion to be led by members of Gray Iron Division Committee on Analysis of Casting Defects.
Subject, *Causes of Casting Defects and Remedies.*

10:30 A. M.—Gray Iron
Effects of Pouring Temperatures on Mechanical Properties of Cast Iron, by V. A. Crosby, Climax Molybdenum Co., Detroit, Mich.
Some Factors Influencing Graphitizing Behavior of Cast Iron, by S. C. Massari, Association of Manufacturers of Chilled Car Wheels, Chicago, Ill.
Effect of Ladle Inoculation on the Solidification of Cast Iron, by J. T. Eash, International Nickel Co., Bayonne, N. J.
Notes on the Undercooling of Gray Cast Iron, by Alfred Boyles, Battelle Memorial Institute, Columbus, Ohio.

10:30 A. M.—Plant and Plant Equipment
Chairman, W. R. Jennings, John Deere Tractor Works, Waterloo, Iowa.
Co-Chairman, James Thomson, Continental Roll & Steel Foundry Co., East Chicago, Ind.
Sand Preparation by the Wet Method, by Howard Mason, Symington-Gould Corp., Depew, N. Y.
Centrifugal Casting and Equipment, by N. Janco, Centrifugal Casting Machine Co., Tulsa, Okla.
Cupola Dry Blast Equipment and Process, by F. M. Johnson, Surface Combustion Corp., Toledo, Ohio.

10:30 A. M.—Steel Founding
Mechanism of Pin-Hole Formation, by C. E. Sims and C. A. Zapffe, Battelle Memorial Institute, Columbus, Ohio.
Report of Committee on Radiography, by C. W. Briggs, Steel Founders' Society, Cleveland, Ohio.

2:00 P. M.—Gray Cast Iron
Nickel-Molybdenum Irons, by R. A. Flinn, Massachusetts Institute of Technology, Cambridge, Mass., and D. J. Reese, International Nickel Co., New York City.
Heat Treatment of Cast Iron, by C. A. Nagler and R. L. Dowdell, University of Minnesota, Minneapolis, Minn.

2:00 P. M.—Steel Founding
The Fluidity of Carbon and Alloy Cast Steels, by H. F. Taylor and E. A. Rominski, Naval Research Laboratory, Anacostia Station, Washington, D. C., and C. W. Briggs, Steel Founders' Society, Cleveland, Ohio.
Report of Committee on Methods of Producing Steel for Castings.
Cast Steels for High Temperature Service, by C. W. Stewart, U. S. Naval Experiment Station, Annapolis, Md.

4:00 P. M.—Annual Lecture Course
(Session No. 4).
Core Practices and Theories.
Lecturer, H. W. Dietert, Harry W. Dietert Co., Detroit, Mich.

C. E. Hoyt

D. J. Reese

Max Kuniansky

F. L. Wolf

Medal Awards to be Presented at Annual Convention

THE A.F.A. Board of Awards has announced that at the annual convention to be held in New York City in May, the four major Gold Medal awards of the Association for meritorious service are to be made to four men who have made outstanding contributions to the advancement of the foundry industry.

This year the awards are:

The Joseph S. Seaman medal to Charles Edgar Hoyt, executive vice president and manager of exhibits of the American Foundrymen's Association. The award to Mr. Hoyt is being made for his exceptionally outstanding service to the foundry industry as manager of the foundry exhibits since 1908, as secretary and treasurer of the Association from 1918 through 1936, and as executive vice president since 1936.

The J. H. Whiting medal to Donald J. Reese, engineer, Research & Development Div., International Nickel Co., New York City, for his outstanding contributions to the foundry industry and the Association through his work in the improvement of cupola melting methods.

The W. H. McFadden medal to Max Kuniansky, general manager, Lynchburg Foundry Co., Lynchburg, Va., for outstanding contributions to the gray iron industry and the Association.

The John A. Penton medal to Fred L. Wolf, technical director, Ohio Brass Co., Mansfield, Ohio, for his outstanding contributions to the non-ferrous and malleable castings industry and the Association.

Such awards are made annually for meritorious service to the foundry industry and the Association on the recommendation of the A.F.A. Board of Awards. These four major awards are gold medals provided for by funds donated in 1920 by four pioneer officers of the Association, each medal being named for one of the donors.

In addition to the medal awards, the Association is recognizing the long continued service and early pioneering work in the technical development of the industry as carried on by Henry M. Lane, Grosse Isle, Mich., by making Mr. Lane an Honorary Life member.

The Awards Board of the Association, established in 1923, consists of the last seven living past presidents. This year the Awards Board is under the chairmanship of Henry S. Washburn, president, Plainville Casting Co., Plainville, Conn. Serving with Mr. Washburn are Past Presidents Marshall Post, vice president, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.; H. Bornstein, director of laboratories, Deere & Co., Moline, Ill.; Jas. L. Wick, Jr., president, Falcon Bronze Co., Youngstown, O.; D. M. Avey, Tulsa, Okla.; Frank J. Lanahan, president, Ft. Pitt Malleable Iron Co., Pittsburgh, Pa.; T. S. Hammond, president, Whiting Corp., Harvey, Ill.

C. E. Hoyt

CHARLES EDGAR HOYT, to be awarded the Joseph S. Seaman Gold Medal of the American Foundrymen's Association, is executive vice president, treasurer and manager of exhibits of the Association. Mr. Hoyt was born in Wayland, Mich., and came from a family of foundrymen, his father and three uncles having learned the molders' trade in the days when a seven-year apprenticeship was required. During vacations he worked in the foundry and, on finishing school, was associated for a time with his father in operating a jobbing foundry and machine shop.

He then accepted a position with the Michigan State College at Lansing, in charge of pattern shop and foundry work, which position he held for three and a half years, resigning to accept a position on the engineering faculty of Lewis Institute, Chicago.

On locating in Chicago, Mr. Hoyt took an active part in foundry association work. In 1907 and again in 1908, as secretary-treasurer of the Chicago Foun-

Seaman Medal

dry Foremen's Association (later the Chicago Foundrymen's Club), he staged two-day conventions and exhibits at Lewis Institute which attracted the attention of the national associations. This resulted in his being elected secretary-treasurer of the Associated Foundry Foremen of America at the A.F.A. Convention in Toronto in 1908 and, the following year, secretary of the Foundry Supply Association. Mr. Hoyt continued as secretary and manager of the exhibits of this Association, and its successor, the Foundry & Machine Exhibition Co., until 1916, when the exhibits were taken over by A.F.A. and he was made manager of exhibits.

When the Association was incorporated in 1916, Mr. Hoyt was one of the signers of the application for a charter and was elected a director. When the Association established a War Service office in Washington in response to a government request, Mr. Hoyt was placed in charge, resigning from the faculty of Lewis Institute, which position he had held during all these years of Association activities.

At the 1918 convention he was elected secretary-treasurer of A.F.A., succeeding A. O. Backert, who resigned to accept the presidency. In 1926, Mr. Hoyt was made executive secretary, treasurer and manager of exhibits. Since 1936 he has been executive vice president, continuing his work in managing the exhibits, which he has staged so successfully that he is recognized as the foremost manager of industrial exhibits in this country.

Donald J. Reese

DONALD J. Reese, to be awarded the J. H. Whiting Gold Medal of the American Foundrymen's association at its 45th annual convention, was born in Wilkes-Barre, Pa., and received his earlier education at the Boy's High School, Reading, Pa. His first position was that of chemist for McCord & Co., Chicago. Later he accepted a similar position with the Wilson Foundry & Machine Co., Pontiac, Mich., and in 1920 became associated with the Whiting Corp. After a year of service, he obtained leave of absence to complete a technical course at the University of Michigan, Ann Arbor, Mich., from which he was graduated in 1925 with a degree

Whiting Medal

of bachelor of science in chemical engineering.

Returning to the Whiting Corp., he was made foundry engineer and later foundry superintendent, serving in that capacity until 1926 when he became metallurgist, Grindle Fuel Equipment Div. of that firm. He retained that position until 1928 when he was transferred to the firm's Chicago office for a year and then returned to the plant to engage in sales engineering work. He recently accepted his present position as foundry research engineer, Research & Development Div., International Nickel Co., New York City.

Mr. Reese has written numerous technical articles and is an active member of the A.F.A. and the American Society for Metals. In connection with the A.F.A. he has a unique record in that he was the first chairman of the Chicago chapter of A.F.A., this being the first chapter organized. He was also the first chairman of the Metropolitan chapter. In his efforts to be helpful to foundrymen he has addressed practically every chapter of the Association and in many cases has been a repeat speaker before these groups. His particular field of development has been that of improvement of cupola melting of cast iron, in which he has made an outstanding reputation.

Max Kuniansky

MAX KUNIANSKY, general manager, Lynchburg Foundry Co., Lynchburg, Va., is to receive the W. H. McFadden Gold Medal of the American Foundrymen's association at the association's 45th annual convention to be held in May in New York City. Mr. Kuniansky is noted for his outstanding contributions to the developments in the gray iron industry and for his many contributions on technical processes through papers and committee work of the A.F.A. For years he has served on the committees of the Gray Iron Division of the association, such as the Committee on Pig Iron qualities, Committee on Recommended Practices for Cupola Mixtures, etc. At present he is chairman of the Subcommittee on Scrap of the Cupola Research Committee. He is a director of the Chesapeake chapter and has given many talks before chapters of the Association and before annual convention sessions.

Mr. Kuniansky was born in Russia on March 30, 1899, and after coming to this country entered the Georgia School of

McFadden Medal

Technology, graduating in 1919 with the degree of B.S. in engineering chemistry. For a while thereafter Mr. Kuniansky was connected with the former Aetna Explosives Co., now the Hercules Powder Co., at the Birmingham, Ala., and Ishpeming, Mich., plants. He was also connected with the National Malleable Castings Co., at the Grant works in Chicago, and with the American Cast Iron Pipe Co., Birmingham, until 1923. Then he became associated with the Lynchburg Foundry Co., Lynchburg, Va., as chief chemist from 1923-1928, then as works manager, later being made general manager of the company with headquarters at Lynchburg. Mr. Kuniansky, in addition to his activities in the A.F.A., has been prominent in the work of other technical and professional associations, particularly the American Society for Testing Materials.

F. L. Wolf

FRED L. WOLF, technical director, Ohio Brass Co., Mansfield, Ohio, will be awarded the John A. Penton Gold Medal of the American Foundrymen's Association at its 45th annual convention to be held in May in New York City, for his outstanding contributions to the non-ferrous and malleable foundry industry. Mr. Wolf is and has been for many years one of the most active A.F.A. workers. He has served as a member of the Sand Research executive committee and committee on conservation and reclamation, on which he also served as representative of the A.F.A. Non-Ferrous Division. He has also served on the Malleable Division Advisory Committee and the Handbook Committee. In addition, he has served as chairman of the Committee on Specifications for Non-Ferrous Metals, A.F.A. representative on A.S.T.M. Special Committee on Promotion of General Use of Specifications for Copper Alloys in Ingots, and A.F.A. representative on A.S.T.M. committees B-2 on Non-Ferrous Metals and Alloys, and B-5, Subcommittee II. He has presented numerous papers on non-ferrous and malleable subjects.

Penton Medal

Born on May 13, 1885, in Elmore, Ohio, he acquired an early education in the public schools there and in Toledo, Ohio, and graduated from the University of Michigan in 1908 with a degree of B.S. in chemical engineering. Thereafter he spent two years at Cobalt, Ont., in charge of development work on mining claims, and became associated with the Ohio Brass Co. in 1911 as chemist. He was also a member of the executive committee of the A.I.M.E., Institute of Metals Division, and a member of the A.S.M., A.S.T.M., American Chemical Society, American Electrochemical Society and the British Institute of Metals, and is prominent in committee work of the A.S.T.M. and the American Electric Railway Association. Mr. Wolf has been a prolific writer on many industrial subjects, both for association meetings and the technical press.

Association Medalists Over the Years

SINCE the establishment of the four major award medals of the Association, made possible through gifts of awards funds in 1920 by pioneer officers of the Association, the Awards Board has recognized services to the foundry industry by those who have contributed greatly to the advancement of the industry.

Realizing that many of the newer members of the Association are not familiar with the past history of A.F.A., it is felt that they would be interested in seeing a list of those who have received these major gold medal awards. These medalists are:

Year of Award	Medal	Recipient
1924	Whiting	John Howe Hall
1924	Penton	Enrique Touceda
1925	Seaman	Dr. Richard Moldenke*
1925	McFadden	Dr. R. J. Anderson
1926	Whiting	E. V. Ronceray* (France)
1926	Penton	John Shaw (England)
1926	Seaman	Thomas Turner (England)
1927	Seaman	R. A. Bull*
1928	McFadden	A. E. Outerbridge*
1929	Seaman	Jesse L. Jones*
1930	Penton	Dr. H. A. Schwartz
1931	Whiting	R. S. MacPherran*
1932	McFadden	Dr. H. W. Gillett
1932	Penton	L. W. Spring*
1933	Seaman	Dr. G. H. Clamer
1934	Whiting	Dr. Arnold Lenz
1935	Penton	L. L. Anthes
1936	Seaman	Dr. H. Ries
1936	Whiting	David McLain
1937	Penton	John W. Bolton
1937	McFadden	C. W. Briggs
1937	Whiting	Dr. J. T. MacKenzie
1938	Seaman	F. A. Lorenz*
1939	McFadden	D. J. Campbell
1939	Penton	H. S. Falk
1939	Whiting	Jas. R. Allan
1940	Penton	N. K. B. Patch
1940	Whiting	F. K. Vial
1940	Seaman	F. A. Melmoth
1940	McFadden	H. W. Dietert

*Deceased.

Metropolitan Chapter Appoints Committees as Host to National Convention

Sam Tour
Lucius Pitkin, Inc., New York
Chairman, General Committee

D. J. Reese
International Nickel Co., New York
Vice chairman, General Committee
Chairman, Ladies' Entertainment Committee

THE chairman of the Metropolitan chapter, R. J. Allen, Worthington Pump & Machinery Corp., Harrison, N. J., has appointed members to serve on the several local committees to plan for welcoming and entertaining members and guests attending the annual convention in New York, May 12-15. The chapter, as host to the convention, has solicited and received the co-operation of the nearby A.F.A. chapters and local foundry associations.

The general committee, composed of the subcommittee chairmen and representatives of the other local groups, will have the direction of various local activities and it is planning to provide to the fullest extent for the entertainment of the Association members and guests at this annual national convention.

The chairman of the general committee, Sam Tour, Lucius Pitkin, Inc., New York, is a past director of A.F.A. He will have working with him as vice chairman Donald J. Reese, International Nickel Co., who served as first chairman of the first A.F.A. chapter and later as first chairman of the Metropolitan chapter. The personnel of the various local convention committees is as follows:

Metropolitan Chapter Convention Committees

General Committee

Chairman, Sam Tour, Lucius Pitkin, Inc.
Vice Chairman, D. J. Reese, International Nickel Co.
R. J. Allen, Worthington Pump & Machinery Corp., Harrison, N. J.
H. C. Seidel, Penn-Rillton Co.
W. A. Phair, *The Journal of Commerce*
K. V. Wheeler, American Steel Castings Co., Newark, New Jersey
F. G. Sefing, International Nickel Co.
D. Polderman, Jr., Whiting Corp.
T. D. Parker, Climax Molybdenum Co.
L. H. Denton, Baltimore, Md. (Representing A.F.A. Chesapeake chapter)
G. R. Holmer, McLagon Foundry Co., New Haven, Conn. (Representing Connecticut Foundrymen's Association)
Louis G. Tarantino, Bridgeport, Conn. (Representing Connecticut Non-Ferrous Foundrymen's Association)
Theodore Janet, Hinrich's Foundry Co., Brooklyn, N. Y. (Representing Gray Iron Foundries of Greater New York)
Wm. Paulson, Thos. Paulson & Son, Inc., Brooklyn, N. Y. (Representing Metropolitan Brass Foundrymen's Association)
E. H. Ballard, General Electric Co., West Lynn, Mass. (Representing New England Foundrymen's Association)
John L. Carter, Newark, N. J. (Representing New Jersey Foundrymen's Association)
R. J. Keeley, Ajax Metal Co., Philadelphia, Pa. (Representing A.F.A. Philadelphia chapter)

Finance Committee

Chairman, R. J. Allen
Horace A. Deane, American Brake Shoe & Foundry Co., Mahwah, N. J.
Carl M. Loeb, Jr., Climax Molybdenum Co.
R. E. Nesbitt, Pratt Institute, Brooklyn, N. Y.
Gerald Hannay, Barnett Foundry & Machine Co., Irvington, N. J.

Reception Committee

Chairman, D. Polderman, Jr.
C. B. Somers, Whitehead Bros.
Dr. N. E. Woldman, Eclipse Aviation Co.
Samuel Frankel, H. Kramer & Co.
H. E. Beckman, Springfield Facing Co.
C. E. Brinker, Whitehead Metal Products Co., Inc.
G. S. Evans, Mathieson Alkali Works
H. W. Reid, Robins Conveying Belt Co., Passaic, N. J.
W. E. Day, Jr., Mack Mfg. Co., New Brunswick, N. J.
H. F. Taylor, Naval Research Laboratory, Anacostia Station, Washington, D. C. (Representative of A.F.A. Chesapeake chapter)
H. A. Phelps, Phelps Foundry, Ansonia, Conn. (Representative of Connecticut Non-Ferrous Foundrymen's Association)
Robert G. Pitz, Pitz Foundry, Inc., Brooklyn, N. Y. (Representative of Gray Iron Foundries of Greater New York)
R. F. Harrington, Hunt-Spiller Mfg. Co., Boston, Mass. (Representing New England Foundrymen's Association)
John M. Robb, Jr., Hickman Williams & Co., Philadelphia, Pa. (Representing A.F.A. Philadelphia chapter)
Walter H. Cole, Moore Bros., Elizabeth, N. J. (Representative of New Jersey Foundrymen's Association)
F. H. Landolt, Penn Brass & Bronze Works, Brooklyn, N. Y. (Representative of Metropolitan Brass Foundrymen's Association)
J. F. Ahrens, Penton Publishing Co.
Anton Hansen, Central Foundry Co., Newark, N. J.

R. J. Allen
Worthington Pump & Machinery Corp., Harrison, N. J.
Chairman, Metropolitan chapter
Chairman, Finance Committee

W. A. Phair
Journal of Commerce, New York
Secretary, Metropolitan chapter
Chairman, Hotel Committee

F. G. Sefing
International Nickel Co., New York
Chairman, Publicity Committee

K. V. Wheeler
American Steel Castings Co., Newark, N. J.
Chairman, Plant Inspection Committee

H. C. Siedel
Penn-Rillton Co., New York
Chairman, Banquet Committee

D. Polderman, Jr.
Whiting Corp., New York
Chairman, Reception Committee

T. D. Parker
Climax Molybdenum Co., New York
Chairman, Transportation Committee

Banquet Committee

Chairman, H. C. Seidel
W. A. Kellogg, National Engineering Co., Maplewood, New Jersey

This committee is co-operating directly with the A.F.A. Banquet Committee, the chairman of which is Henry S. Washburn, Plainville Casting Co., Plainville, Connecticut.

Hotel Committee

Chairman, W. A. Phair
Wm. Kelly, Nassau Smelting & Refining Co.

Transportation Committee

Chairman, T. D. Parker

Publicity Committee

Chairman, F. G. Sefing
Nils Anderson, Debevoise-Anderson Co.
Samuel Frankel, H. Kramer & Co.
William F. Gude, *The Foundry*
Harold Osman, Reading Steel Casting Div., American Chain & Cable Co., Reading, Pa.
W. A. Phair, *Journal of Commerce*
George Strahan, International Nickel Co.

Plant Inspection Committee

Chairman, K. V. Wheeler
G. G. Adams, Osborn Mfg. Co.
B. S. Bendin, Whitehead Bros. Co.
W. E. Day, Jr., Mack Mfg. Co., New Brunswick, N. J.
A. C. Leviton, Fischer Foundry Div., Boundbrook Oiless Bearing Co., Boundbrook, N. J.
John Ludwig, Jr., Electro Metallurgical Sales Corp.
Wayne Martin, General Bronze Corp., Corona, Long Island
J. P. Nevin, Otis Elevator Co., Yonkers, N. Y.
D. S. Yoemans, G. F. Pettinos Co., East Orange, N. J.
T. L. Wood, American Brake Shoe & Foundry Co., Mahwah, N. J.
George Bangs, Tottenville Copper Co., Tottenville, S. I.

Ladies' Entertainment Committee

Chairman, D. J. Reese
Co-Chairman, Mrs. D. J. Reese
Co-Chairman, Mrs. Sam Tour

Mrs. K. A. DeLonge	Mrs. John Reid
Mrs. Horace Deane	Mrs. Wm. A. Phair
Mrs. D. Polderman, Jr.	Mrs. John Marsh
Mrs. R. E. Beers	Mrs. T. N. Armstrong
Mrs. R. J. Allen	Mrs. F. G. Sefing

Mrs. E. W. Horlebein, Baltimore, Md. (Representative of A.F.A. Chesapeake chapter)
Mrs. G. R. Holmer, Hampden, Conn. (Representative of Connecticut Foundrymen's Association)
Mrs. D. Wesley Case, Devon, Conn. (Representative of Connecticut Non-Ferrous Foundrymen's Association)
Mrs. Ann G. Halloran, Forest Hills, L. I., N. Y. (Representative of Gray Iron Foundries of Greater New York)
Mrs. E. H. Ballard, Swampscott, Mass. (Representative of New England Foundrymen's Association)
Mrs. W. B. Coleman, Germantown, Philadelphia, Pa. (Representative of A.F.A. Philadelphia chapter)
Mrs. Louise L. Kissling, Brooklyn, N. Y. (Representative of Metropolitan Brass Foundrymen's Association)

Dr. Stockdale to be Speaker at Annual Dinner

DR. ALLEN A. STOCKDALE, who will give the address at the annual dinner meeting of the New York convention, is ranked as one of the most eloquent speakers on the American platform. He comes to the Association through the National Association of Manufacturers, for which organization he has been addressing national groups of industrialists. The A.F.A. is especially gratified to have secured him for its annual convention.

Dr. Stockdale was graduated from the Boston University School of Theology and did postgraduate work in philosophy and sociology. He was a resident student at Oxford University, England, in 1922-23. He has held pastorates in Boston, Toledo, Chicago, and most recently at the First Congregational Church, Washington, D. C.

Dr. Allen Stockdale

During his residence in Boston, Dr. Stockdale was chaplain of the Emerson College of Oratory and at present he is a trustee of that institution. He served for six months in France during the World War as a Red Cross field director with the commission of captain. He was with the Second Division near Soissons in July, 1918, at the opening of the big drive.

Dr. Stockdale is the author of many bits of well-known poetry. He was at one time editorial contributor to the "Peoples Home Journal" and the "Congregationalist" and was formerly editor of the devotional magazine called "Reveille."

Since November 1, 1937, Dr. Stockdale has been speaking exclusively for the National Association of Manufacturers.

Aerial view of the U. S. Naval Academy at Annapolis, Md., where the Navy trains its men.

Virginia Beckons Members for Pre-Convention Trip

ASSOCIATION members anxious to see a few historic spots in the southeast where early Americans first settled will find the pre-convention tour, with the Chesapeake chapter as host, particularly attractive. The Association has arranged this pre-convention tour that members traveling from the west and southwest can take advantage of round trip railroad fares to New York, with the privilege of going by way of Washington, D. C. The plan calls for one day (Saturday, May 10) in Washington, a steamer ride down the Chesapeake Bay to Norfolk, Va., with Sunday being spent on a bus tour through the historic Williamsburg section of Virginia. The return to Washington will be made by boat, with the tour party reaching New York, noon, Monday, May 12.

Meeting in Washington Saturday morning, the members will be provided optional trips to such places as Mt. Vernon, U. S. Naval Academy or government buildings.

The pilgrimage to Williamsburg, Va., starts at 6:30 p. m., Saturday, leaving Washington on the steamer "District of Columbia." The cruise down the placid Potomac is something that will never be forgotten. As one sits in his deck chair, such famous places as Mt. Vernon, the Army War College, Forts Foote and Washington pass right before his eyes. Other pleasures offered by the boat are dancing, listening to the radio, bridge playing or lounging.

The next morning, Sunday, after a hearty breakfast (the meals aboard this steamer have earned themselves a country-wide reputation for their goodness) the boat docks and special buses carry the party on a tour of Norfolk. A ferry boat ride is made across Hampton Roads to Newport News, famous ship-building and dry dock center.

One arrives in Williamsburg about noon, where lunch is served at the New Williamsburg Lodge. After luncheon, a guided tour of historic Williamsburg is provided, visiting numerous famous restored buildings such as the Governor's Palace, Rawleigh Tavern, Bruton Parish Church, the Colonial Capitol, College of William and Mary, and others. Lovely gardens, old woodwork, quaint utensils everywhere are vivid reminders of customs and times written about in our history books.

Two cities of historical renown, Jamestown and Yorktown, are visited later in the afternoon and more interesting things can be seen.

At 6:40 p. m. the steamer leaves for the return trip to Washington. The pre-convention party arrives in Washington at 6:45 a. m., Monday morning, May 12, and is conveyed to the Union Station by motor coach to board the Baltimore and Ohio train, arriving in New York at 11:52 a. m.

Chapters are being urged to co-operate by arranging to have their members travel together to Washington. Circulars describing arrangements with the railroads and the Norfolk and Washington, D. C., Steamboat Co. are being mailed to members by chapters.

N.I.-S.W. Chapter Cooperates at Engineering Meeting

THE Northern Illinois-Southern Wisconsin chapter of the American Foundrymen's Association co-operated with the American Institute of Electrical Engineers, American Society of Mechanical Engineers, National Association of Power Engineers, American Society of Tool Engineers, Society of Production Engineers, Rockford Engineering Society and the American Society for Metals in a meeting on February 28 at the Faust Hotel, Rockford. The meeting was sponsored by the Rock River Valley Engineering Council, of which the above engineering societies and associations constitute the membership. The meeting was addressed by Col. James L. Walsh who spoke on "National Defense Problems."

The Capitol in Williamsburg, Va., has been rebuilt on original foundations as the earlier of the two buildings that stood in the village during the eighteenth century.

HOTEL RESERVATION

45TH ANNUAL CONVENTION

AMERICAN FOUNDRYMEN'S ASSOCIATION

New York—May 12 to 15, 1941

.....194.....

.....Hotel

Gentlemen: Please make hotel reservations noted below:

No. of Single Rooms.....with bath Rate Preferred $..... to $.....

No. of Double Bedded Rooms.....with bath Rate Preferred $..... to $.....

No. of Twin Bedded Rooms.....with bath Rate Preferred $..... to $.....

Arriving May ..... Hour.....A. M. .....P. M. Leaving May .....

Room or rooms will be occupied by: (Please designate those who are to occupy the same room)

Name	Company or Business Connection	City	State

(List additional names on separate sheet)

If hotel of first choice is unable to accept this reservation, our second choice is Hotel .....,

third choice Hotel .....

Applicant.....

Business Connection .....

Street Address.....

City.....State.....

For the information of the Ladies' Entertainment Committee, please give number of ladies in your party:

.....

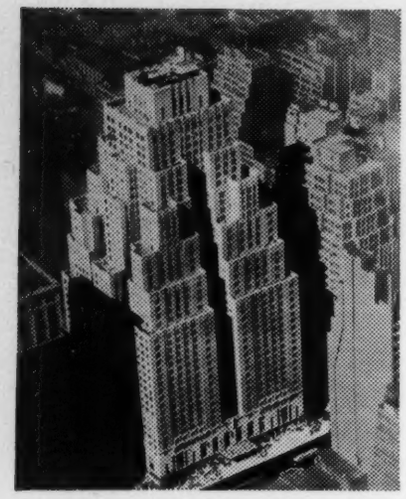
.....

.....

(Tear out and mail your reservation to hotel selected)

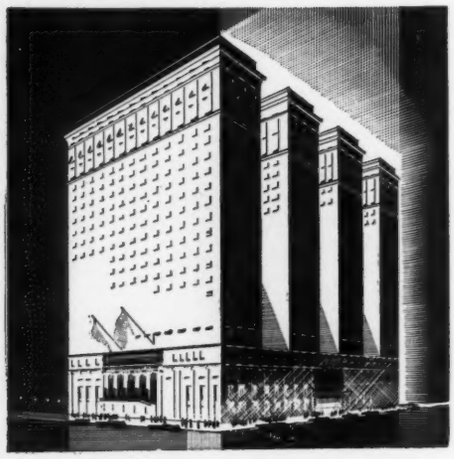
The five New York hotels here listed are all in the "Penn Zone" district within two blocks of Hotel Pennsylvania where registration and convention headquarters will be located.

All of these hotels are co-operating with the local committees who request that you patronize them.



Above — Hotel New Yorker, 34th Street and Eighth Avenue. Single rooms from $3.50. Double bedded rooms from $5.00 Twin bedded rooms from $6.00.

Above—Governor Clinton, 31st Street and Seventh Avenue. Single rooms from $3.00. Double bedded rooms from $4.00. Twin bedded rooms from $5.00.



Above—Hotel Pennsylvania, 33rd Street and Seventh Avenue. Single rooms from $3.50. Double bedded rooms from $5.00. Twin bedded rooms from $6.00.

Below — Hotel McAlpin, Broadway and 34th Street. Single rooms from $3.00. Double bedded rooms from $4.50. Twin bedded rooms from $4.50.

Below—Hotel Martinique, Broadway and 32nd Street. Single rooms from $2.50. Double bedded rooms from $3.50. Twin bedded rooms from $4.00.

Note: Mail all applications direct to hotel selected. Applicant will receive direct confirmation from hotel when reservation is made. Additional hotel application blanks will be forwarded on application to American Foundrymen's Association, 222 West Adams Street, Chicago, Illinois.

A Resume of the 1940 Apprentice Patternmaking Contest

By Frank C. Cech, Cleveland, Ohio

In the February, 1940, issue of American Foundryman, the author, who is instructor in patternmaking, Cleveland Trade School, Cleveland, Ohio, and a member of the A.F.A. Apprentice Training Committee, presented the comments of the judges on patterns entered in the 1939 patternmaking apprentice contest held during the 1939 A.F.A. convention. This article might be termed a sequel to the former, as it gives the author's own appraisal of the patterns entered in the 1940 contest.

IN THIS review of the 1940 apprentice patternmaking contest, it is the writer's intention to present such items of interest as will elaborate the resume of the 1939 contest. Therefore, the review is presented as a sequel to the article by the present author that appeared in the February, 1940, issue of *American Foundryman*, wherein the objectives and accomplishments of the A.F.A. Apprentice Training Committee were presented, along with a general description of the methods used in conducting local and national apprentice contests.

Contests, Like Apprentice Programs, Worthwhile

To question the merits of these contests is to question (from the employers point of view) the merits of apprenticeship itself. The writer has heard some express disappointment with the results of apprenticeship because some apprentices have left their employers shortly after having served their indenture requirements. The frequency of such occurences over a span of years is negligible, as has been proved by employers who conduct apprenticeship classes on a large scale and where statistical information is kept and made available. However, the practice of changing jobs is not altogether to be discouraged, as the additional and varied experience gained by the employee is passed on to industry in the end and makes for constant improvement and advancement. Many of today's leaders of industry are the product of just such roving from job to job in the past.

Chapter Presents Employers with Trophies

Recognizing and appreciating certain disconcerting elements in apprenticeship programs similar to those expressed above, and the work, effort and expense of conducting and encouraging participation in contests, the Northeastern Ohio Chapter of A.F.A. has set a commendable precedent. The Chapter presented trophies, illustrated in Fig. 1, to the patternmaking and foundry companies, in whose employ the winners happened to be at the time of the contests. Thus, both the apprentices and companies received local and national recognition.

Many of the contest winners were boys who, for economic reasons, did not have the opportunity to continue in school, and were forced to seek remunerative employment. Through apprenticeship and contest participation, they triumphed. Their outstanding contribution had gained for them a pleasant evening where they met and chatted with their employers on a common ground as guests of the local chapter—a refreshing incident possible only under our democratic form of government. The trophies were designed by the apprenticeship committee and were made at Cleveland Trade School. Involved in the manufacture of the trophies, were apprentices of the pattern, foundry, auto-body paint division, and painting departments of that institution.

Fig. 1—Plaque presented to companies whose apprentices won honors in the National A.F.A. Apprentice competition in 1940 by the Northeastern Ohio Chapter of the American Foundrymen's Association.

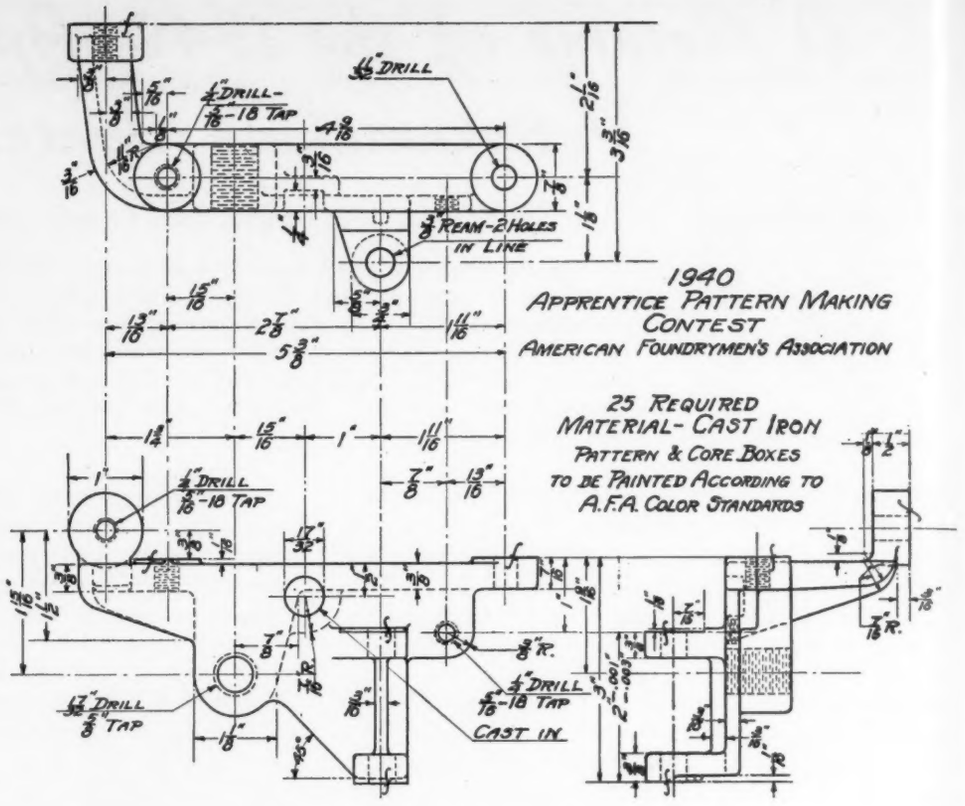


Fig. 2—Drawing for patterns to be entered in the National Apprentice Patternmaking Contest at the 1940 A.F.A. Convention. Information on the drawing shows that 25 cast iron castings are required from the pattern and that the pattern is to be painted according to A.F.A. color standards.

Comments on the Contributions to the 1940 Contest

(Based on quality, workmanship and moldability, but not on accuracy which may have been the deciding factor in choice for prizes. For requirements of patterns, see Fig. 2.)

Pattern No. 26 (Fig. 3)

Pattern and corebox were well planned, if the use of dry sand cores is preferred. However, there was too much taper on the coreprint faces, resulting in uncertain and difficult setting of cores. The lug portion of pattern should be green sand. Re-

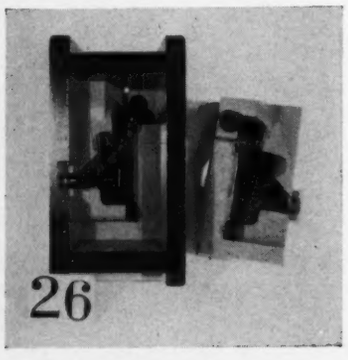


Fig. 3

lying on glue alone, as a means of fastening, resulted in loss of the pattern part. Nailing should have been used as an added precaution.

Pattern No. 13 (Fig. 4)

Slight back-draft was found on this pattern. Faulty construction of corebox caused sand to stick

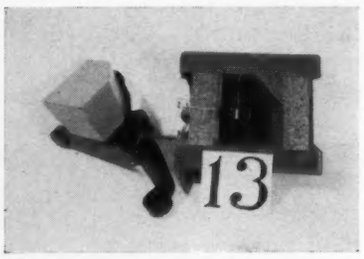


Fig. 4

between boss and corebox wall. The face of the coreprint had too little draft.

Pattern No. 27 (Fig. 5)

The size and number of cores is disproportionate to size of the pattern. There was lack of taper on face of middle-sized and small

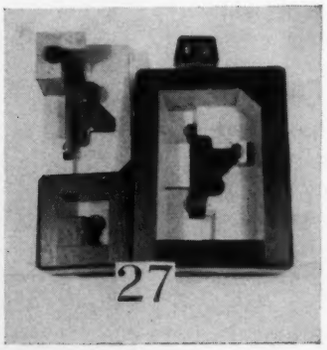


Fig. 5

coreboxes. Loose piece construction is impractical.

Pattern No. 19 (Fig. 6)

Both pattern and corebox are well made. Method of molding

Fig. 6

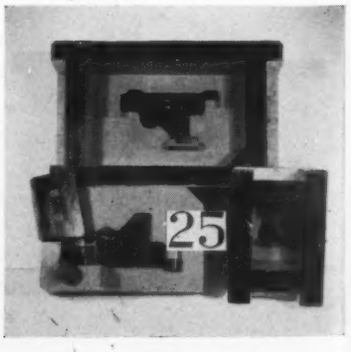


Fig. 7

requires sand match or false cope. Leather fillets are preferable to wax fillets on this job.

Pattern No. 25 (Fig. 7)

There is absence of draft on some parts of coreprints. The number and size of cores is out of proportion to the pattern size. The increased number of cores increases possible fins on the finished casting. The use of mahogany is preferable to pine on this job.

Pattern No. 24 (Fig. 8)

Pattern mounting on plywood is a good idea. However, the use of pine is out of keeping with

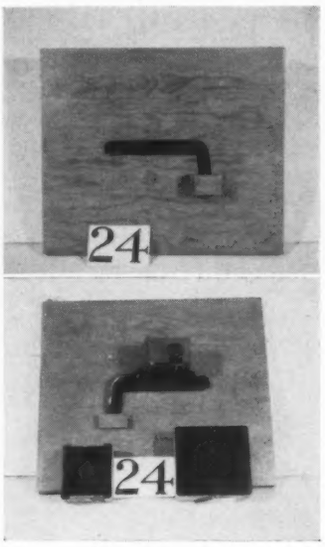


Fig. 8

the plated pattern. Mahogany should have been used. No part of this pattern showed draft and it consequently violated the first principles of good moldability.

Pattern No. 20 (Fig. 9)

Rounding-off the corner to meet the fillet that runs part-way

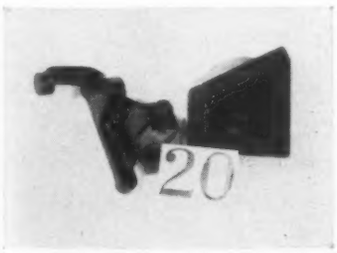


Fig. 9

in the box would help molding as well as simplify pattern work.

Pattern No. 16 (Fig. 10)

Pattern construction necessitates setting and caring for three loose pieces. Loose pattern bosses should have fillet turned on. Matching pieces, part of which are in dry sand and other

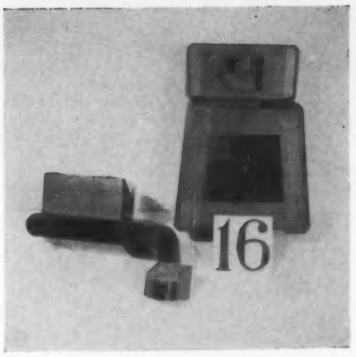


Fig. 10

part in green sand, is difficult and results in unsightly fins and mismatches, especially on small casting work as here represented. The writer favors a green sand job on the two loose pieces. The loose piece in the corebox is not necessary. No draft allowed is on larger box. Corners on the rib in the corebox should be rounded.

Pattern No. 18 (Fig. 11)

Both pattern and corebox show good workmanship and finish. Wax fillets should be replaced by leather fillets. Pattern con-

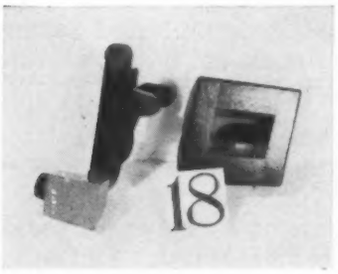


Fig. 11

struction necessitates coping along boss profile, causing a heavy cope lift and poor moldability.

Pattern No. 15 (Fig. 12)

An unnecessary loose piece, difficult to draw because of insufficient clearance, is included to give ⅛-in. finish stock. On a

Fig. 12

pattern of this design and size, 1/16-in. finish is sufficient. The fillet was left off. It is impractical to cut such a fillet on pattern of this size. Method of molding did not allow for rounding of corner. Lacks draft on core. Much improvement is possible on this job. There are too many cores.

Pattern No. 9 (Fig. 13)

The pattern and corebox are made of pine with wax fillets. Rounding-off corners to meet the fillet that runs part-way in

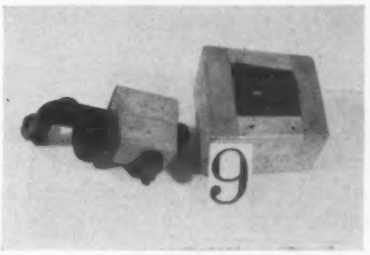


Fig. 13

the box would help molding as well as simplify pattern work. The opposite ends of the corebox are straight, making a difficult draw. Workmanship is poor, lacking neatness.

Pattern No. 14 (Fig. 14)

Both pattern and corebox are neat and well made. But why is base of corebox made of pine

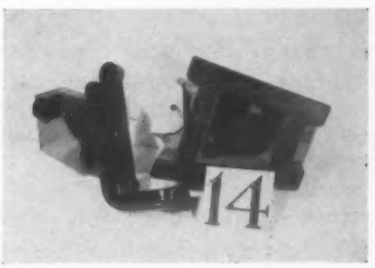


Fig. 14

and sides of mahogany? The additional time necessary to get a piece of mahogany surely is negligible.

Pattern No. 23 (Fig. 15)

Plating this pattern on plywood is permissible, but this job seems too small for any standard-sized flask. Two cores made in one box are not easy to "sense" draw. Acute angles in the coreboxes are difficult to draw. Some back-draft was found. No nails were used in coreboxes. Setting small tail-

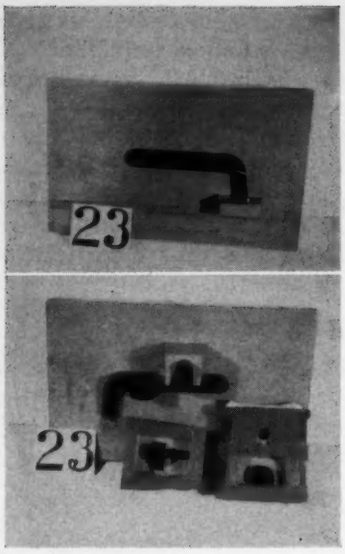


Fig. 15

core partly in green and partly in dry sand, conducive to poor casting, both in accuracy and appearance.

Pattern No. 10 (Fig. 16)

This equipment presents an unorthodox method of molding

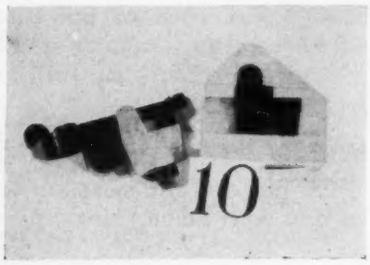


Fig. 16

and coring, with poor coping-off prospects. The rough end-grain would tear core during the draw. Mahogany and leather fillets preferred to pine and wax fillets.

Pattern No. 12 (Fig. 17)

The corebox has too deep a draw, making for broken or frac-

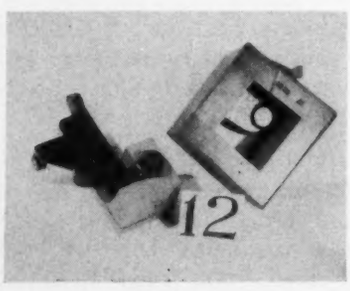


Fig. 17

tured cores. One side of corebox shows backdraft of 1/16 in. Otherwise presents high quality workmanship.

Pattern No. 28 (Fig. 18)

The corebox has insufficient draft. Also the core is too thin and may warp in baking. Core-

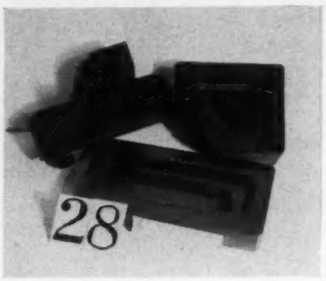


Fig. 18

box sides should have more stock to stand up for 25 castings. Top of corebox should be chamfered rather than bottom.

Pattern No. 7 (Fig. 19)

This is an excellently made pattern and, in the writer's judgment, should have been more

Fig. 19

carefully considered, as a green sand job is preferred by many. A fillet should have been turned on the loose piece.

Pattern No. 5 (Fig. 20)

This pattern presented fair workmanship. The boss in the bottom of the coreprint could be made more readily in green sand,

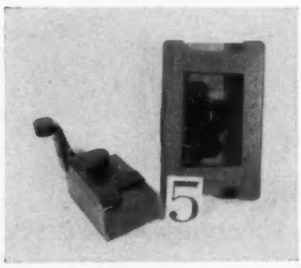


Fig. 20

instead of a core. Sharp corners in corebox should be avoided to assist in dumping the core. Larger fillets would improve the job. Short grain should be avoided as it weakens the pattern. More prominent center lines should be encouraged.

Pattern No. 11 (Fig. 21)

General workmanship is good. The fillet in the corebox should

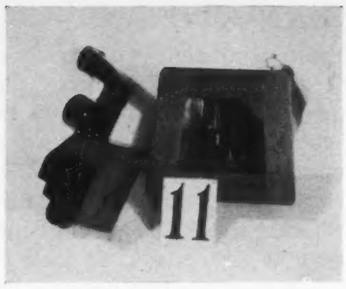


Fig. 21

not be cut. The top, outer corners of coreboxes should be chamfered.

Pattern No. 21 (Fig. 22)

The pattern should be made of mahogany rather than pine. The corebox lacked draft. Locking

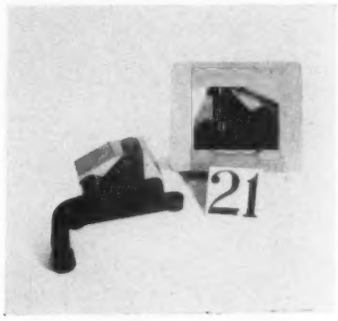


Fig. 22

arrangement is desirable. Leather fillets of uniform size should be used. Top face of corebox should be chamfered. Draft allowances on corebox are not uniform.

Pattern No. 17 (Fig. 23)

Both pattern and corebox are of good construction. However, here again, a lug must be matched

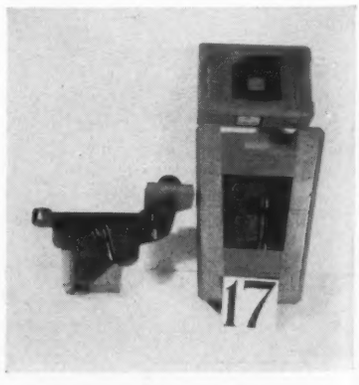


Fig. 23

as shown by—green sand drag—cope core and cope green sand—which is conducive to unsightly job.

Pattern No. 8 (Fig. 24)

The coreprint on this pattern was not equalized—not enough bearing for core. Pine pattern,

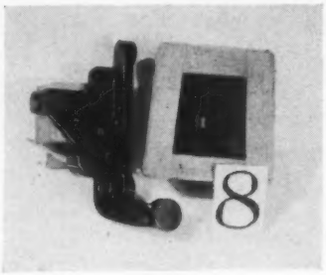


Fig. 24

workmanship poor, wax fillets are undesirable qualities. However, some thought was given to

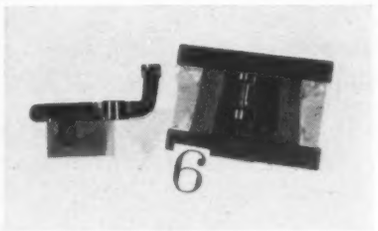


Fig. 25

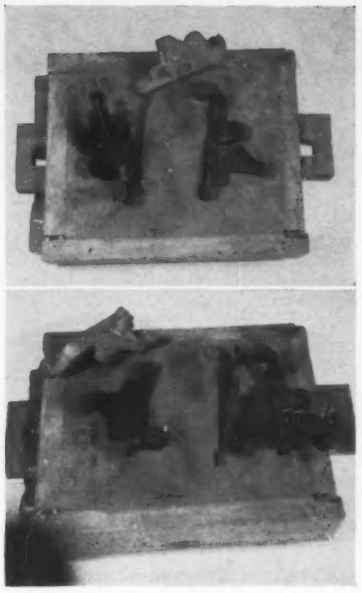


Fig. 26

preparing a plain surface on which to rest pattern while ramming it.

Pattern No. 6 (Fig. 25)

This pattern has a slight backdraft and there is not enough draft on the corebox. Otherwise, this pattern is well made.

Fig. 26 shows sand-matches made in the foundry of the Cleveland Trade School to determine the plausibility of thus making the molds.

Fig. 27 shows castings made from the sand matches.

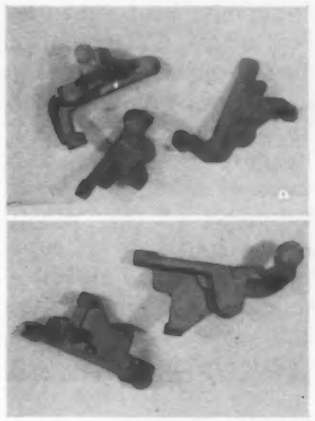


Fig. 27

Summary

Throughout the inspection of the patterns submitted in this contest, the writer found certain thoughts kept entering his mind.

1. Why is not more attention paid to drafting surfaces? Recent National Defense Groups have filled in an age gap so that the writer can say safely that he has had pupils in a continuous age range of 15 to 50. This includes all-day trade, cooperative, and part-time day school, night school and National Defense Program groups. Many have worked in the foundry and yet, on their return to the pattern shop, slip up on draft. Is it carelessness? Is it too much interest put into getting the job done? Or just what is it?

2. Little thought seems to have been given to furnishing a straight surface on which to place a pattern while ramming it up.

3. Commercial castings must be neatly made, as looks are often the deciding point in placing an order.

4. Why is not more time given to planning a pattern? Surely anyone using loose pieces would know that sufficient room must be given to absorb or make way for a loose piece in drawing it out of the mold. Foundries often must make special provision to correct this discrepancy.

From his inspection of the patterns entered in the 1940 contest on the basis outlined previously, the writer has reached the following conclusions:

1. The patterns submitted in this contest presented three schools of thought: (1) Those favoring extensive use of cores, (2) those who used cores sparingly, and (3) others who preferred patterns without cores, even though it meant the use of follow boards, sand matches, or false copes.

2. Too much taper on coreprints makes for inaccurate or difficult setting of core.

3. All other things being equal, parts of a pattern, such as bosses or lugs, should be in green sand where possible.

4. Glued sections of pattern should also be nailed, otherwise sections may become loose and lost.

5. Insufficient draft is a pattern fault for which no excuse can be offered. It is a problem of teachers and pattern checkers that defies solution. Time spent in the foundry to demonstrate its importance seems wasted, as this problem is always with us.

6. A corebox, that must be drawn by hand, should be so constructed that its weight is in proportion to the size of the core, otherwise it is difficult to "feel" the draw of the core.

7. Waste is represented in using heavier stock than is necessary in constructing patterns and coreboxes or in handling a larger number of cores than is necessary.

Wisconsin Chapter Goes to Town

THE Wisconsin chapter, like their University basketball team, went to town in February. While their basketball team was winning the Big 10 championship, Membership Chairman Bill Hambley and his committee were signing up 25 new members to take the lead in the membership drive. President B. D. Claffey, of the Wisconsin chapter, has demonstrated his confidence in his committee's ability to "bring home the bacon" by the wagers he has made with members of other chapters.

The name of the Wisconsin chapter is fourth to be engraved on the membership trophy. The Chesapeake chapter, as a result of their good work, were successful in retaining the trophy for three consecutive months. Therefore the name of the Chesapeake chapter is engraved three times on the trophy.

The Chesapeake chapter did not spend much time in swaddling clothes. Their chapter membership now exceeds 100 members. Their high chair, bassinet, rattle, etc., was presented to the latest addition of the chapter family, West Michigan chapter, which was born and christened on March 3 in Muskegon, Mich. Chesapeake has given them a record to shoot at.

Northeastern Ohio retains third place with Central New York in fourth. Southern California moved up from seventh to fifth; Chicago tenth to ninth; Ontario in one leap from fifteenth to tenth place and Central Indiana from seventeenth to fourteenth.

Up to date the drive has netted 529 new members. President Shannon set as our goal an A.F.A. membership of 5,000 by June 30, 1941. The quota for February was 100 new members and we received 101 new applications. This, incidentally, was a record for new members in any one month. In order to reach our goal records must be smashed each month. The quota for March is 150 new members. The Membership Committee needs your help.

This will show that Chesapeake bunch, says Bill Hambley as he gets two new members to sign up at the Wisconsin regional meeting. The membership bell took its first trip when it journeyed to Milwaukee and was presented to the Wisconsin chapter at the March meeting.

New Members Enrolled in Chapters
From July 1, 1940, to Feb. 28, 1941

Place	Chapter	Sustaining	Company	Affiliate	Personal	New Members Feb.	Total New Members	Total Points
1st	Wisconsin	0	10	46	8	25	64	1430
2nd	Chesapeake	1	7	49	7	9	64	1395
3rd	Northeastern Ohio	0	9	19	9	5	37	1005
4th	Central New York	1	2	31	1	4	35	695
5th	Southern California	0	4	16	8	8	28	680
6th	Western New York	0	4	18	6	2	28	650
7th	Metropolitan	0	3	19	6	3	28	615
8th	Detroit	0	3	8	7	4	18	480
9th	Chicago	0	0	16	5	5	21	390
10th	Ontario	0	5	5	2	6	12	385
11th	Birmingham	0	1	17	2	2	20	365
11th	St. Louis	0	1	5	8	2	14	365
12th	Northern California	0	0	11	5	3	16	315
13th	Cincinnati	0	4	7	0	3	11	305
14th	Central Indiana	0	2	10	1	8	13	280
15th	Quad City	0	2	10	0	2	12	250
16th	Philadelphia	0	1	8	2	2	11	230
17th	Michiana	0	1	5	3	1	9	215
18th	Nor. Illinois-Sou. Wisconsin	0	1	1	0	0	2	65
		2	60	301	80	94	443	.....
	Outside of Chapters	..	....	.....	....	7	86	.....
	Total New Members	..	....	.....	....	101	529	.....

Points Awarded on Memberships

Sustaining	100	Personal	30
Company	50	Affiliate and Associate	15

Vice President Simpson Donates Second and Third Place Trophies

Vice President H. S. Simpson, chairman of the National Membership drive, has presented two more trophies to be awarded to the chapters winning second and third place in the membership contest which ends June 30, 1941. These new trophies are also bells somewhat smaller than the first prize, which Mr. Simpson presented at the start of the drive.

Permanent possession of these three bells will go to the chapters which are in first, second and third place in the membership drive when it finishes next June. In the meantime, at the end of each month, possession of the bells for the following month goes to the chapters in the first three places, with the chapter name being engraved on the bell as the winner for that month. These trophies will grace the speakers' table of the chapters wherever they go.

Student Chapter Organized at Minnesota U.

TEN student members of A.F.A. at the University of Minnesota, Minneapolis, Minn., have organized the first student chapter of A.F.A. The movement was suggested by H. F. Scobie, instructor in foundry practice at the institution, and he and Fulton Holtby, assistant professor, mechanical engineering, are advisers.

The group has adopted a constitution and by-laws and elected officers. LeRoy Kelman is chairman. Additional information on the student chapter will be carried in the May issue of *American Foundryman.*

NEW MEMBERS

Feb. 18 to March 17, 1941

Birmingham Chapter

Parker Capps, Treas., C. I. Capps Co., Jacksonville Fla.
*Geo. C. King Co., Sheffield, Ala. (Geo. C. King, President)

Canadian Chapter

W. E. Foster, Supt., Wabi Iron Works Quebec, Ltd., Noranda, Que., Canada
W. S. White, Sorel Steel Foundries, Ltd., Sorel, Que., Canada

Central Indiana Chapter

Henry F. Brown, Asst. Foreman, Golden Foundry Co., Columbus, Ind.
*Dill Foundry Company, Rushville, Ind. (Joseph Curry, Superintendent)
Henry Timbrook, Foreman, Golden Foundry Co., Columbus, Ind.
Walter F. Tragarz, Foundry Mgr., International Harvester Co., Richmond, Ind.

Central New York Chapter

Alexander Pishko, Journeyman, Syracuse Chilled Plow Co., Inc., Syracuse, N. Y.

Chesapeake Chapter

Emil Baker, Acting Coremaker Foreman, Bethlehem Steel Co., Sparrows Point, Md.
W. D. Bourquin, Towson, Md., Salesman, Republic Steel Corp., Cleveland, Ohio
Lawrence Efford, Bronze Furnace Melter, Koppers Company, American Hammered Piston Ring Div., Baltimore, Md.
Albert Fritz, Molder, Bethlehem Steel Co., Sparrows Point, Md.
Tracy C. Jarrett, Chief Met., Koppers Co., American Hammered Piston Ring Div., Baltimore, Md.
Earl L. Kelly, Molder, Koppers Co., American Hammered Piston Ring Div., Baltimore, Md.
Philip Luber, Ass't Gen'l Foreman, Bethlehem Steel Co., Sparrows Point, Md.
Hugh Wallace, Leadingman Molder, Norfolk Navy Yard, Portsmouth, Va.

Chicago Chapter

A. J. Barnebl, Sales Engr., Whiting Corp., Harvey, Ill.
George Lieberman, Apprentice, Burnside Steel Foundry Co., Chicago, Ill.
Dino Pignotti, Apprentice, American Manganese Steel Division, American Brake Shoe & Foundry Co., Chicago Heights, Ill.
Joseph Spinozzi, Apprentice, American Manganese Steel Division, American Brake Shoe & Foundry Co., Chicago Heights, Ill.
Tito Tarquinio, Apprentice, American Manganese Steel Division, American Brake Shoe & Foundry Co., Chicago Heights, Ill.
Alex Zydlewski, Apprentice, American Manganese Steel Division, American Brake Shoe & Foundry Co., Chicago Heights, Ill.

Detroit Chapter

David W. Boyd, Sales and Service Engr., Detroit Electric Furnace Div., Kuhlman Electric Co., Bay City, Michigan
Woodrow Wilson Holden, Chemist, General Foundry & Mfg. Co., Flint, Mich.
Walter J. Larson, Foundry Instructor, Cass Technical High School, Detroit, Mich.
Harold W. Schroeder, Foundry Supt., Michigan Steel Casting Co., Detroit, Mich.

Metropolitan Chapter

Arthur K. Berkner, Foundry Foreman, Wright Aeronautical Corp., Paterson, N. J.
David Cameron Bradley, Met. Ass't, American Brake Shoe & Fdry. Co., Mahwah, N. J.
W. Burggraaf, Proprietor, Marine Brass Foundry, Hoboken, N. J.
Gerald B. Duff, Manufacturers' Agent, Newark, N. J.
William D. Schoonmaker, Mgr. Plant No. 3, General Bronze Corp., Long Island City, N. Y.
Floyd F. Vogel, Estimator, General Bronze Corp., Long Island City, N. Y.

Northeastern Ohio Chapter

B. L. Ballard, Sales, Ingersoll-Rand Co., Cleveland, Ohio
Ernest F. Giebel, Time Study, Ferro Machine & Foundry Co., Cleveland, Ohio
Roy V. Kennedy, President, General Foundry Supply Co., Cleveland, Ohio
Edward Kreager, Supt., Taylor & Boggis Foundry Co., Cleveland, Ohio
Edwin Jay Lally, Jr., Met. and Melter, Taylor & Boggis Foundry Co., Cleveland, Ohio

Northern California Chapter

V. P. Beauchamp, Sales, Balfour, Guthrie & Co., Ltd., San Francisco, Calif.
Frank J. Blake, San Francisco, Calif., Sales, The Carborundum Co., Niagara Falls, N. Y.

Ontario Chapter

*Ottawa Car & Aircraft, Ltd., Ottawa, Ont. (W. L. Bond)
*Corbin Lock Co. of Canada, Ltd., Belleville, Ont. (Fred Jobson, Foundry Supt.)
Wm. P. Muir, Gen'l Mgr., Muir Foundry Supplies, Ltd., Toronto, Ont., Canada

Philadelphia Chapter

*Empire Steel Castings, Inc., Reading, Pa. (M. G. Moore, Jr., President)
A. A. Koch, Molder, Bethlehem Steel Co., Bethlehem, Pa.
Bertrand S. Norris, Research Met., U. S. Pipe & Foundry Co., Burlington, N. J.

St. Louis Chapter

*Rogers Iron Works Co., Joplin, Mo. (C. B. Rogers, President)

Southern California Chapter

Carmen Anguiana, Molder, Kinney Iron Works, Los Angeles, Calif.
A. Lee Bennett, Mgr., Refractories Dept., Gladding, McBean & Co., Los Angeles, Calif.
Norman Stanley, Stanley Pattern & Foundry Co., Huntington Park, Calif.

Western Michigan Chapter

*American Brass Novelty Co., Grand Haven, Mich. (F. C. Kuhnle, President)
Charles H. Cousineau, Ass't Met., West Michigan Steel Foundry Co., Muskegon, Mich.
Philip A. Grimard, Gen'l Foundryman, Sealed Power Corp., Muskegon, Mich.
George W. Myers, Supt., West Michigan Steel Foundry Co., Muskegon, Mich.
Jack Conrad Olson, Sealed Power Corp., Muskegon, Michigan
Warren B. Rice, Chemist, Sealed Power Corp., Muskegon, Mich.

Western New York Chapter

Alfred A. Diebold, Foreman, Atlas Steel Casting Co., Buffalo, N. Y.
John C. Goetz, Foundry Supt., Acme Steel & Malleable Iron Works, Buffalo, N. Y.
C. S. McMath, Buffalo, N. Y., Salesman, E. J. Woodison Co., Detroit, Mich.
J. H. Neal, Salesman, Hercules Powder Co., Wilmington, Delaware

Wisconsin Chapter

James Ames, Apprentice, Universal Foundry Co., Oshkosh, Wis.
Robert S. Carey, Chicago, Ill., Sales, Pickands, Mather & Co.
Chester C. Carlson, Sales, Agicide Laboratories, Inc., Milwaukee, Wis.
Thomas H. Gregg, Sales, Black Products Co., Milwaukee, Wisconsin
Norbert J. Gross, Sand Control, Belle City Malleable Iron Co., Racine, Wis.

*Company.

R. W. Isaacson, Melting Supv., Belle City Malleable Iron Co., Racine, Wis.
John J. Janes, Plant Engr., Standard Foundry Co., Racine, Wis.
Edward A. Janke, Cupola Foreman, Nordberg Mfg. Co., Milwaukee, Wis.
Charles F. Krause, Cupola Foreman, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Lynn C. LeClaire, Inspector, Nordberg Mfg. Co., Milwaukee, Wis.
Alfred E. Linkman, Patternshop Foreman, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
George H. Luber, Patternshop Foreman, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Ernest L. Mrkvicka, Sec'y-Treas., Standard Foundry Co., Racine, Wis.
E. A. Nusbaum, Wisconsin Face Brick & Supply Co., Milwaukee, Wis.
John Putchinski, Research, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Adolf H. Schott, Supt., Standard Brass Works, Milwaukee, Wis.
Clarence A. Stegemeyer, Chief Inspector, Federal Malleable Co., West Allis, Wis.
E. A. Wiberg, Engineer, Nordberg Mfg. Co., Milwaukee, Wisconsin
John Wiltzius, Foreman, Nordberg Mfg. Co., Milwaukee, Wisconsin

Outside of Chapter

Elmer S. Dinesen, Student, University of Minnesota, Minneapolis, Minn.
Gilbert Falck, Student, University of Minnesota, Minneapolis, Minn.
W. Fowler, Acting Mgr., Commonwealth Government Ammunition Factory, Cheltenham, South Australia
Kenneth Geist, Student, University of Minnesota, Minneapolis, Minn.
William L. Howey, Foreman, Defiance Machine Works, Inc., Defiance, Ohio
Henry A. Jensen, Sr., Supt., General Electric Co., River Works, West Lynn, Mass.
Joseph F. Lange, Student of Metallurgy, University of Illinois, Urbana, Ill.
George F. Pearson, Student, University of Minnesota, Minneapolis, Minn.
Josue Piccini, Chief of Mechanical Shop, Via Cao Ferrea de Rio Grande do Sul Santa Maria, Rio Grande do Sul, Brasil
Gustav A. Pinkul, Foreman, General Electric Co., River Works, West Lynn, Mass.
Merle Sneed, Student, Carnegie Institute of Technology, Pittsburgh, Pa.
Joseph B. Stazinski, Ass't Supt., Iron Foundry, General Electric Co., River Works, West Lynn, Mass.
Philip F. Wyatt, General Electric Co., River Works, West Lynn, Mass.

No Change in Scrap Classification

D. P. HOPKINS, U. S. Pipe & Foundry Co., Burlington, N. J., A.F.A. representative on the Standing Committee of the U. S. Department of Commerce on Classification of Iron and Steel Scrap, which was responsible for the issuance of Simplified Practice Recommendation R58-36, reports that up to the present there has been no change in this practice, which was revised to its present form in 1936. Mr. Hopkins reports that the committee conducted a survey about a year ago and the results showed that no revision of the present practice was required.

Simplified Practice Recommendation R58-36 on Classification of Iron and Steel Scrap covers classes of scrap used in (1) blast furnaces, (2) basic open-hearth furnaces, (3) acid open-hearth furnaces, (4) electric furnaces, (5) gray iron foundry practice, (6) bessemer converters, and (7) classes of miscellaneous scrap. Those classes of major importance to the foundry industry are those for basic and acid open-hearth and electric furnaces for the gray iron foundry.

Classes covered for scrap used in basic open-hearth furnaces include (1) No. 1 heavy melting steel scrap, (2) No. 2 melting steel, (3) heavy shoveling steel scrap, (4) short shoveling flashings, (5) long flashings, (6) mixed flashings, (7) No. 1 busheling, (8) No. 2 busheling, (9) No. 1 selected rail scrap, (10) No. 1 selected shearing scrap, (11) axle turnings, (12) No. 1 machine-shop turnings, (13) No. 2 machine-shop turnings, (14) cast-iron borings, (15) hydraulically compressed sheet scrap, (16) baled sheet scrap, (17) hand-bundled sheet scrap, (18) loose sheet clippings, (19) galvanized or coated sheet scrap, (20) detinned sheet scrap, (21) electrical sheet scrap, (22) high-silicon sheet scrap, (23) No. 1 cast-iron scrap, (24) No. 2 cast-iron scrap, (25) No. 3 cast-iron scrap, and (26) heavy breakable cast scrap.

Classes of scrap covered for acid open-hearth furnaces include the following: (1) billet and bar crops, (2) plate crops, (3) structural and miscellaneous scrap, (4) tube scrap, (5) punchings, (6) car wheels, (7) spring steel scrap, (8) couplers and knuckles, (9) scrap tires, (10) car bolsters, (11) medium-silicon scrap, (12) high-silicon scrap, (13) high nickel scrap, (14) No. 1 chromium-nickel scrap, (15) No. 2 chromium-nickel scrap, (16) light chromium-nickel scrap, (17) special chromium-nickel scrap, and (18) nickel steel turnings.

Classes covered for electric furnace consumption are (1) punchings and clippings, (2) guaranteed heavy scrap, (3) unguaranteed scrap, (4) guaranteed axle turnings, and (5) unguaranteed turnings.

Gray iron foundry scrap consists of the following classifications: (1) No. 1 machinery cupola scrap, (2) No. 1 machinery breakable scrap, (3) No. 1 standard cupola scrap, (4) No. 1 standard breakable scrap, (5) burnt cast scrap, (6) stove plate scrap, (7) agricultural scrap, (8) cast-iron car wheels, (9) brake shoes, (10) No. 1 radiator scrap, (11) No. 2 radiator scrap, (12) No. 1 malleable scrap, and (13) No. 2 malleable scrap.

All these and other classes of scrap are described in the above simplified practice recommendation, copies of which may be obtained from the American Foundrymen's Association or from the superintendent of documents, Washington, D. C.

Hotel Reservations

FOR the convenience of members wishing to make hotel reservations for the annual convention in New York in May, there is included in this issue of *American Foundryman*, as pages 11 and 12, a reservation blank which can be detached, filled out and mailed to the hotel selected. Members are requested to give number of ladies in their party.

CHAPTER OFFICERS

Louis J. Desparois, St. Louis Chapter

Louis J. Desparois, vice chairman, St. Louis district chapter, is a native of Michigan. He was born in Detroit, where he received his elementary education. He later attended college in France for two years, and also spent a year at Christian Brothers College, Kansas City, Mo.

The year 1914 found Mr. Desparois employed by the American Radiator Co., Kansas City, Mo., as an apprentice to the cupola foreman. After seven years with this company he was promoted to foundry superintendent of the Buffalo, N. Y., plant and remained there till 1924. He was transferred from Buffalo to St. Paul, Minn., and stayed there till 1926. Mr. Desparois resigned his post that year to become affiliated with the

L. J. Desparois

technical service department, St. Louis Gas & Coke Corp., Granite City, Ill., where he was employed for seven years. At that time he severed his connection and worked in the sales department for Hickman, Williams & Co., St. Louis, Mo., until 1935. He then became associated with the Pickands, Mather & Co., St. Louis, Mo., as district sales manager.

Mr. Desparois is a member of A.F.A. and also A.I.M.E. and A.S.M.

R. E. Nesbitt, Metropolitan Chapter

The Metropolitan chapter's treasurer is Richard E. Nesbitt, instructor, Pratt Institute, Brooklyn, N. Y. Mr. Nesbitt was born in Cleveland, O., attended schools in Cleveland and was graduated from Purdue University with a M. E. degree in 1913. Following his graduation Mr. Nesbitt was employed in various capacities, but it was not until 1919 that he became associated with the foundry industry. That year found him employed by the Westinghouse Air Brake Co., Wilmerding, Pa., where from 1919 to 1930 he worked himself up from assistant foundry foreman to general foundry foreman. In 1930 he became

R. E. Nesbitt

affiliated with the Pratt Institute as an instructor and has been employed there to the present time.

In the publication field Mr. Nesbitt wrote the foundry section of the "Manual of Forge, Foundry and Pattern Shop Practice."

Besides holding membership in A.F.A. Mr. Nesbitt is a member of the Society for Promotion of Engineering Education.

V. L. Whitehead, Jr., Western New York Chapter

Elected to serve as treasurer of the Western New York chapter is V. L. Whitehead, Jr., vice president, Whitehead Bros. Co., Buffalo, N. Y.

After graduating from Cornell University, Ithaca, N. Y., in 1908, Mr. Whitehead, Jr., came in contact with the foundry industry a year later. He then was employed by the Bingham & Taylor Foundry Co., Buffalo. He left that concern in 1910 to become a member of the Whitehead Bros. Co., and served this organization in various capacities. The years 1918-19 found him in the U. S. Navy serving as a naval aviator. Returning to the plant after the war, he continued his work and was elected vice president of the company in 1924.

V. L. Whitehead, Jr.

L. D. Wright, Central New York Chapter

Chapter secretary, Central New York chapter, is L. D. Wright, plant superintendent, U. S. Radiator Co., Geneva, N. Y.

Mr. Wright was born in Bremen, Indiana, and he received his early schooling there. He then enrolled at the University of Michigan, from which he was graduated in 1922.

Mr. Wright became foundry foreman, U. S. Radiator Corp., Dunkirk, N. Y., and remained there until 1923. He was then transferred, in 1923, to the company's plant in Detroit and served in the above mentioned capacity. In 1927 he was sent to the Geneva, N. Y. plant to act as their foundry foreman until 1931, when he was made plant superintendent.

L. D. Wright

Editor's Note — The photographs of officers of various chapters, together with the office they hold, their firm connections and the Chapter with which they are affiliated, which follow this note, have been published, together with biographical sketches of their industrial careers, in past issues of *American Foundryman*. For this reason, biographical material is omitted from this issue.

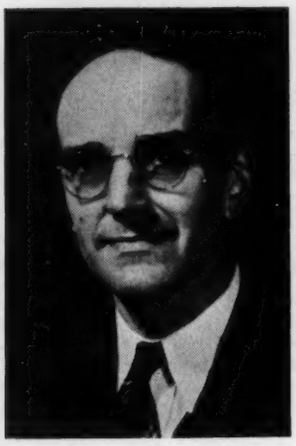
W. M. Ball, Jr.
Edna Brass Mfg. Co., Cincinnati
Vice Chairman, Cincinnati District Chapter

J. A. Bowers
American Cast Iron Pipe Co., Birmingham, Ala.
Vice Chairman, Birmingham District Chapter

R. K. Glass
Republic Steel Corp., Buffalo, New York
Vice Chairman, Western New York Chapter

L. L. Henkel
Interlake Iron Corp., Chicago
Vice Chairman, Chicago Chapter

A. C. Ziebell
Universal Foundry Co., Oshkosh, Wisconsin
Vice Chairman, Wisconsin Chapter

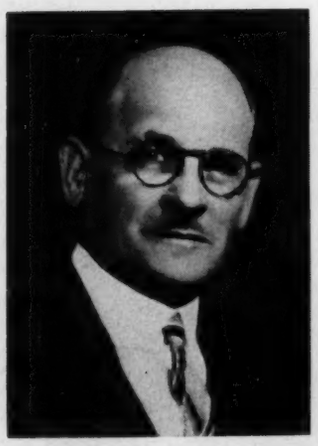


N. H. Boardman
Elmira Foundry Co., Elmira, N. Y.
Treasurer, Central New York Chapter

C. C. Kawin
Chas. C. Kawin Co., Chicago, Ill.
Treasurer, Chicago Chapter

R. F. Lincoln
Osborn Mfg. Co., Cleveland, Ohio
Treasurer, Northeastern Ohio Chapter

W. W. Bowring
F. B. Stevens, Inc., Detroit, Mich.
Treasurer, Detroit Chapter



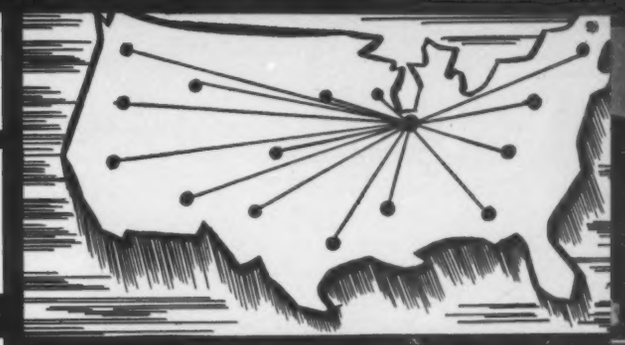
G. L. Kennard
Northern California Foundrymen's Institute, San Francisco, Calif.
Secretary-Treasurer, Northern California Chapter

J. W. Kelin
Federated Metals Div., A. S. & R. Co., St. Louis, Mo.
Secretary-Treasurer, St. Louis District Chapter

L. L. Andrus
American Foundry Equipment Co., Mishawaka, Ind.
Secretary-Treasurer, Michiana Chapter

W. B. Coleman
W. B. Coleman & Co., Philadelphia, Pa.
Secretary-Treasurer, Philadelphia Chapter

Chapter Activities



Washburn Speaks on Merchandizing at Metropolitan Meeting

By K. A. DeLonge*, New York City, N. Y.

CAPITALIZING on the opportunity to give a "long talk" Henry S. Washburn, president, Plainville Castings Co., Plainville, Conn., discussed before some sixty members and guests at the March 5 meeting of the Metropolitan chapter at the Essex House, Newark, N. J., the method he has found so successful in profitably supplying customers with low cost, quality castings. Chapter Chairman R. J. Allen, Worthington Pump & Machinery Co., Harrison, N. J., presided.

Introduced by D. J. Reese, International Nickel Co., New York, Mr. Washburn began by pointing out that in a jobbing foundry the product is usually shipped unfinished, and hence the production and sale of castings must be considered jointly. To be able to carry on a profitable business the foundryman must first have an analysis of his costs. This analysis includes the history of the company, whether the customers are the in-and-out type, cost of labor and materials and the level of foundry activity. Although the cost of labor and material might remain the same, the cost of castings may vary because of the level of foundry activity. To prevent the need for gouging the customer during prosperous times to recover the losses of slack periods, the speaker recommended the use of a 65-70 per cent foundry activity figure as a basis for calculating costs.

Mr. Washburn stated it has been his experience that the best method of insuring satisfactory relations with the buyer of castings is to approach the customer with a policy such as the following: Show him your costs, figure a reasonable profit and then explain that future increases or decreases in the price of castings will depend upon variations in the cost of labor and raw materials and upon how closely the activity in the foundry approaches the 65-70 per cent level. The benefits to the customer of this plan, he said, are an improvement in the quality of the castings and a reduction in net costs over a period of several years. Mr. Washburn concluded his well received talk with a plea for foundrymen to continue to improve the position of their industry by availing themselves of the technical benefits offered by the American Foundrymen's Association.

Previous to the technical talk and discussion the assemblage enjoyed many a hearty laugh and chuckle listening to coffee-talker A. W. Deller, patent attorney, International Nickel Co., describe with illustrations various humorous patents. Just what effect this exhibition of inventive genius might have upon local foundry practice is a matter of conjecture.

*International Nickel Co., and Reporter, Metropolitan chapter.

Western Michigan Organized As 20th A.F.A. Chapter

DESPITE road conditions making auto traveling hazardous, a group of some 70 members of the American Foundrymen's Association met on March 3 at the Occidental Hotel, Muskegon, Mich., to formally organize the Western Michigan group as the 20th chapter of the Association. The meeting was preceded by a dinner with members from Muskegon, Grand Rapids and other nearby towns participating. Don Seyferth, works manager, West Michigan Steel Foundry Co., chairman of the local organizing committee, presided. He presented R. E. Kennedy, secretary of the Association, who reported on the action

Hundreds of foundrymen from Wisconsin and neighboring states gathered in Milwaukee for the fourth annual foundry conference. These pictures show some of the "foreigners" with the "home town boys."

(Photos courtesy John Bing, A. P. Green Fire Brick Co.)

of the A.F.A. Board approving the petition for the chapter formation. Mr. Seyferth then read the report of the nominating committee, presenting the following for election as directors:

A. E. Jacobson, Grand Haven Brass Foundry, Grand Haven
J. W. Livingston, Blackmer Pump Co., Inc., Grand Rapids
C. P. Ziegler, Grand Rapids Foundry, Grand Rapids
E. W. Beach, Campbell Wyant & Cannon Foundry Co., Muskegon
F. J. Buckley, Kalamazoo Foundry & Machine Co., Kalamazoo
E. G. Carter, Standard Automotive Parts Co., Muskegon
O. G. Jentsch, Wolverine Brass Works, Grand Rapids
C. M. Clover, Clover Foundry Co., Muskegon
R. J. Teetor, Cadillac Malleable Iron Co., Cadillac
C. J. Lonnee, Muskegon Piston Ring Co., Sparta Div., Sparta
G. W. Cannon, Jr., Campbell Wyant & Cannon Foundry Co., South Haven
J. C. Jensen, Battle Creek Foundry Co., Battle Creek

The election of these members as directors was approved with the announcement that they would later elect their officers for the coming year. John Abbott, a director of the Chicago chapter, after conveying the greetings of that group to the newest chapter, presented to Mr. Seyferth a cast iron gavel in the form of a baby rattle. This gavel has been passed from chapter to chapter as new chapters are formed. Mr. Seyferth, in accepting this token, promised that the Western Michigan chapter was going to be a healthy baby and show surprising growth. He then read a telegram of greetings from the Association's president, L. N. Shannon, Birmingham, Ala., and one from E. W. Horlebein, chairman of the former baby chapter, the Chesapeake.

Following these formalities and fun, A. W. Gregg, foundry engineer, Whiting Corp., Harvey, Ill., gave an interesting talk on practical cupola operation, showing slides of various types of cupola charging installations. Mr. Gregg in his presentation reviewed several fundamental factors in good cupola practice.

Speakers and chapter illuminaries that were important in the success of Wisconsin's fourth annual regional foundry conference.

(Photos courtesy John Bing, A. P. Green Fire Brick Co.)

Pittsburgh Hears McElwee

By R. L. Hartford*, Pittsburgh, Pa.

CONSIDERABLE active discussion highlighted the regular February meeting of the Pittsburgh Foundrymen's Association held at Fort Pitt Hotel, Pittsburgh, February 17. Ladle additions and their effect on hardness and machinability of castings were discussed by R. G. McElwee, Vanadium Corporation of America, Detroit. Mr. McElwee's talk covered the subject of adding various alloys to the ladle in an attempt to control hardness and maintain machinability in castings. Particular emphasis was laid on late additions.

The speaker discussed the actions of various alloys and their effect on the finished products. He stressed the point that many of these additions, such as ferrosilicon, silicon-titanium, and the others, actually are hardening agents. Although used in many cases to provide softer castings, the action depends on the percentage of material used in the addition. In the case of most of these additions, results are obtained in the initial addition of small quantities through the throwing out of carbon to provide graphitization of the melt and thus results in a softening effect. Actually the silicon contained in many of these additions hardens the ferrite.

Another factor which must be considered in determining the amount to be added is the fact that large quantities are apt to cause porosity in thick sections. In the case of silicon-titanium alloy, quantities below 0.5 per cent produce a higher percentage of graphitic carbon and lower combined carbon. Above this figure, titanium carbide is formed, which produces harder castings. In using aluminum as an addition, past practice has established the fact that 0.03 per cent maximum is the largest amount which can safely be used and still avoid pin holes.

Mr. McElwee described the extensive research which has

*Penton Publishing Co., and Chairman, Program Committee, Pittsburgh Foundrymen's Association.

been done to provide an alloy addition which would not cause trouble when excess amounts are added to the ladle. Describing the procedure followed at the University of Michigan, the speaker outlined the various steps in development from silicon-chromium to the final silicon - manganese - chromium which provided fairly good results.

Physical requirements of a good addition include a definite physical form; chemical action which will include catalysis as well as acceleration; sufficient specific gravity to sink in the melt and combine with the iron in the ladle. In addition to this, the by-products of the action must be harmless. The speaker showed numerous slides of the physical effects of addition of these alloys to the composition of the melt.

Wisconsin Regional Sets Record

A TRIBUTE must be paid to the officers and committees of the Wisconsin chapter and the University of Wisconsin in the most successful staging of the Fourth Annual Regional Foundry Conference held at Milwaukee, February 20 and 21. This year the committee in charge was under the co-chairmanship of A. C. Ziebell, vice president of the Wisconsin chapter and president, Universal Foundry Co., Oshkosh, and Prof. J. F. Oesterle, college of engineering, University of Wisconsin, and a program of technical sessions and general interest meetings was developed which attracted a registration of over 380, with 750 at the main event, the annual dinner meeting which was the regular chapter monthly meeting.

With Chapter President Ben Claffey presiding, the conference was opened with an address of welcome by F. Ellis Johnson, Dean of the college of engineering of the University of Wisconsin. The special events were the Thursday luncheon meeting addressed by the Honorable Carl Ziedler, Mayor of Milwaukee; the joint meeting that afternoon with Victor L. Short, president, Institute of Human Science, Springfield, Mass.; the conference dinner with Carl J. Hambro, Prime Minister in exile of the Norwegian government; the Friday luncheon with Gen. N. F. Ramsey, Commanding Officer, Rock Island Arsenal, discussion work of the Arsenal in the preparedness program, and the first Friday meeting with L. V. Boardman, Federal Bureau of Investigation, discussing plant preparedness of possible sabotage prevention.

Each morning and afternoon, simultaneous technical sessions covering gray iron, steel, malleable and non-ferrous practices were held, with speakers and discussion leaders exceptionally well qualified to take charge. There were twenty of these technical sessions. Speakers for the steel sessions were Dr. C. H. Lorig, Battelle Memorial Institute; S. W. Brinson, Norfolk Navy Yard; Dr. G. E. Doan, Lehigh University; H. A. Forsberg and Jas. Thomson, Continental Roll & Steel Foundry Co. Malleable casting speakers were Leon Wise, Chicago Malleable Casting Co.; Bert Stone, Belle City Malleable Iron Co.; W. R. Jennings, John Deere Tractor Works, while J. H. Lansing, Malleable Founders' Society, led a scrap clinic assisted by a board of experts from the local malleable plants.

The non-ferrous subjects were handled by Lt. Marshall and Mr. Nicholas, Navy and Ordnance Inspection of Milwaukee; Messrs. Cumnick and Curtis, Rock Island Arsenal; G. H. Starmann, Apex Smelting Co.; D. B. Milward, Electro Refractories Co.; Ralph L. Lee, The Liberty Foundry Co., Inc., and A. K. Knight, Allis-Chalmers Mfg. Co.

The speakers for the gray iron sessions were Vaughan Reid, City Patterns Works; J. A. Gitzen, Delta Oil Products Co.; A. Lebesch, H. Quartz and W. H. Brooks, Allis - Chalmers Mfg. Co.; E. S. Armstrong, Interna-

In the dining room or meeting room members had numerous important foundry problems to discuss between them and a few of the typical groups are shown. The bottom picture shows that the ladies were there too.

Carl J. Hambro (seated center), prime minister to the Norwegian government in exile in London, is being questioned further by (left to right) Ben Claffey, Wisconsin chapter chairman; A. C. Ziebell, regional conference co-chairman; Professor J. F. Oesterle, regional conference co-chairman, and George Dreher, chapter program chairman, of the Nazi invasion of Norway.

(Photo courtesy John Bing, A. P. Green Fire Brick Co.)

tional Harvester Co., and J. W. Harris, Spring City Foundry.

R. F. Jordan, Sterling Wheelbarrow Co., chapter treasurer, did splendid work in directing the registration and ticket sales.

Through the efforts of the conference committee and the chairmen of the sessions, the program moved smoothly and with the clocklike precision for which this chapter is noted in its handling of these annual conferences.

Birmingham Chapter Holds Ninth Annual Conference

THE big southern Foundry Conference, held annually at the Tutwiler Hotel, Birmingham, was this year sponsored by the Birmingham District chapter, Thursday, Friday and Saturday, February 27 and 28 and March 1. While the registration at the technical sessions was not as heavy as last year, the number, 380, was considered exceptionally good under existing conditions with foundries all exceedingly busy. The conference dinner attendance again had to be limited to 500, the capacity of the hotel banquet room.

At the main feature of the conference, the dinner, W. O. McMahon, chapter chairman, presided, with Warren Whitney, National Cast Iron Pipe Co., as toastmaster. The guest speaker, Robt. C. Hendon, U. S. Dept. of Justice, introduced by L. N. Shannon, A.F.A. president, talked on "Preparedness and the F.B.I."

Plant inspections, one of the yearly features of this conference, were made Friday and Saturday mornings with the arrangements being made by the plant visitation committee under the joint chairmanship of A. S. Holberg, Alabama Clay Products Co., and H. G. Mouat, Whiting Corp.

To handle the conference details, Chapter Chairman W. O. McMahon, Sloss-Sheffield Steel and Iron Co., had the assistance of the regular chapter committees with the program arranged by J. E. Reynolds, chairman; the entertainment by J. T. Gilbert and Wayne Nelson, co-chairmen; the publicity by Jack Hayes, chairman, and the registration by Geo. Hayes and Fred Brown, co-chairmen.

Chapter Vice Chairman J. A. Bowers, American Cast Iron Pipe Co., presided at the Thursday luncheon, presenting the Hon. W. Cooper Green, president, Birmingham City Commission, who welcomed the group to Birmingham, and R. E. Kennedy, A.F.A. secretary, who gave a short review of the place of the A.F.A. in the foundry industry.

The several technical sessions

Garnet Phillips (left) and Dr. James T. MacKenzie talk things over after a busy session at the Birmingham regional conference.

The U. S. Pipe & Foundry Co., Birmingham, Ala., welcomed plant visitors at the Birmingham regional conference with this display of art.

were devoted largely to cast iron developments. At the first of these sessions, with W. H. Spencer, Thomas Foundries, Inc., presiding, Dr. Jas. T. MacKenzie, American Cast Iron Pipe Co., gave a comprehensive review of the "Engineering Properties of Cast Iron." At the second, W. E. Jones, Stockham Pipe Fittings Co., presided, while G. P. Phillips, Automotive Foundry Div., International Harvester Co., Chicago, discussed production problems in the automotive foundry. The chairman of the third session was Prof. R. L. Farabee, University of Alabama, with Dr. C. H. Lorig, Battelle Memorial Institute, Columbus, Ohio, presenting "Some Considerations Regarding Carbon-Cast Iron." Two technical sessions were held Friday afternoon. R. H. Mattison, McWane Cast Iron Pipe Co., presided at the first, with the speaker, L. E. Sanders, National Foremen's Institute, Deep River, Conn., discussing "The Place of the Foreman in National Defense." Chas. K. Donoho, American Cast Iron Pipe Co., presided at the last technical meeting, with J. E. Jackson, Copper, Iron and Steel Development Association, Cleveland, Ohio, presenting a survey of copper in iron and steel.

The entertainment committee provided a floor show for the guests Thursday evening. The conference certainly was thoroughly enjoyed by those participating, and the congratulations and appreciation of the Association go to the officers of the Birmingham chapter for successfully continuing this outstanding annual chapter affair.

Northern California Talks Cast Iron

By G. L. Kennard*, San Francisco, Calif.

IVAN L. JOHNSON, Pacific Steel Casting Co., Berkeley, and Northern California chapter chairman, presided over the March meeting held at Lake Merritt Hotel.

A coffee talk was presented by Anton Sluis, a native of Holland, who gave a very fascinating account of his experiences on a recent visit to his native land, where he was for a time before and during the invasion.

Dr. C. D. D'Amico, metallurgist, Standard Oil of California, gave a technical talk on the solidification characteristics of cast iron.

The speaker confined his remarks to non-ferrous castings and proved to have an excellent knowledge of his subject and that he had had a wealth of experience in the non-ferrous field. His address was prefaced by an illustrated description of how metal solidified and that it was necessary to have "directional solidification" in order to prevent cracks, dendrites and shrink in the casting. Mr. George had some very interesting slides illustrating his many points and the many questions asked him after his presentation showed the members were interested in his talk.

*Northern California Foundrymen's Institute, and Secretary-Treasurer, Northern California chapter.

The Birmingham chapter's ninth annual foundry practice conference was the event of the season in southern foundry circles and was the hit of the year as can be seen in these pictures. Top row—Warren E. Whitney (left) and Robert C. Hendon come to a friendly understanding. (Center) W. Cooper Green, president, City Commission, Birmingham, addresses the regional gathering. (Right) Two outstanding men in A.F.A. activities, President L. N. Shannon (left) and Executive Vice President C. E. Hoyt. Bottom row (left to right)—W. O. McMahon, Birmingham chapter chairman; J. A. Bowers, chapter vice chairman; and Secretary-Treasurer D. L. Booker pose for W. W. McCullough. Seated around the dinner table (left to right) H. West, R. R. Deas, Jr., and M. J. Hassan.

(Photos courtesy W. W. McCullough, American Cast Iron Pipe Co.)

New England Discusses Gating

By M. A. Hosmer*, Boston, Mass.

THERE were about 60 members and guests present at the regular monthly meeting of the New England Foundrymen's Association which was held at the Engineers Club, Boston, March 12. Following the dinner Charles O. Butler, presiding officer and superintendent, Warren Pipe Co., introduced W. B. George, foundry engineer, R. Lavin & Sons, Inc. Mr. George discussed the subject "Gating and Risering of Non-Ferrous Castings."

*Chemist, Hunt-Spiller Manufacturing Co., and Reporter, New England Foundrymen's Association.

Cincinnati Inspects Plant

By Henry M. Wood*, Cincinnati, O.

THE Cincinnati chapter, represented by 60 members, toured the Hamilton plant, American Rolling Mill Co., March 11. The members visited the blast furnaces and coke ovens. Prior to the trip the men gathered at Syhuller's Restaurant for dinner.

*W. W. Sly Manufacturing Co., and Secretary, Cincinnati chapter.

National Officers and Judson at Central New York Meeting

By L. D. Wright*, Geneva, N. Y.

THE regular chapter meeting of the Central New York chapter was held at the Onondaga Hotel, Syracuse, February 14, and was the occasion of an official visit by President Shannon, Stockham Pipe Fittings Co., Birmingham, Ala., and Assistant Secretary N. F. Hindle, American Foundrymen's Association.

Frank Wheeler, Kimman & Wheeler, Syracuse, chapter chairman, expressed the appreciation of the local foundrymen in having an opportunity to greet President Shannon and Assistant Secretary Hindle. President Shannon in extending his good wishes to the chapter stressed the importance of the chapters co-operating in the national membership drive and told the members he felt that the small foundries were more in need of help that could be extended to them through A.F.A. membership than were the larger ones.

Speaker of the evening was Harold H. Judson, foundry superintendent, Goulds Pumps, Inc., who discussed "Gates and Risers." Mr. Judson said that all foundrymen have their own system of gating and risering and that gates and risers are designed to pour clean castings. A great many foundrymen have their gates so designed that the gate acts as a nozzle, changing the pressure to velocity. One of the most important phases of gating is the location of the gate with relation to the castings. For some types of non-ferrous work certain foundrymen gate through the risers. From the author's observations he finds that his company is more successful with flat jobs when they are poured fast. In some cases the blacking will flake off the cope if not poured fast enough. From the economical angle it is best to consider the weight of the sprue versus the weight of the castings. The author's company has no set rule for pouring temperature but as a general rule pour very hot on pump castings for gas and oil and the slightly colder iron is poured on frames. Most foundrymen consider risers as a means of offsetting shrinkage but the effect that the riser has on the metal in the casting varies with the analysis of the metal.

*United States Radiator Corp., and Secretary, Central New York chapter.

Jennings Talks Rigging At Chicago Meeting

By B. L. Simpson*, Chicago, Ill.

THE Chicago chapter had a very full program at its regular meeting on March 10 at the Chicago Towers Club, Chicago.

One of the stellar attractions was the Continental Roll and Steel Foundry Company Glee Club, which appeared under the direction of our good friend, Jim Thomson. This organization, together with the able assistance of Jack Johnstone as accompanist, presented a large repertoire of favored numbers for the entertainment of the assembled members.

The chapter was then privileged to present W. R. "Rex" Jennings, foundry superintendent, John Deere Tractor Co., Waterloo, Iowa, who discussed "Rigging and Molding Equipment."

Mr. Jennings stated that, in his opinion, it is the details which count in foundry work and that foundries would be best advised to make maximum use of their available equipment before considering installation of new equipment. He pointed out that in the selection of equipment for molding and other purposes certain factors must be taken into consideration:

1. It is absolutely necessary to know within reasonable limits the number of pieces to be made before equipment can be figured.
2. That foundries must be built around the molder. He is the center of the foundry, and the more service that can be given him, the more the increase in production.
3. All equipment must be designed to reduce fatigue. This is particularly important due to old employees whom it is the company's desire to hold on to and the additional incentive that reduction of fatigue in turn reduces cost.

Mr. Jennings explained different types of molding machines and their potential capacities. By slides he illustrated some of the more difficult molding problems that had come to his attention.

*National Engineering Co., and Secretary, Chicago chapter.

Kyle Explains Casting Processes at New England

By M. A. Hosmer*, Boston, Mass.

THE subjects of die casting, permanent and semi-permanent mold casting, and other special processes, were discussed by Professor Peter E. Kyle, Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, Mass., at the February 12 meeting of the New England Foundrymen's Association. Over 80 members gathered at the Engineers Club, Boston, to hear what Professor Kyle had to say about the "Development in Precision Casting Processes." Charles O. Butler, Warren Pipe Co., Everett, Mass., was in charge of the meeting.

The speaker said that there is a need, under present conditions, for producing metal parts as close to a finished size as possible in order to minimize the time and expense involved in the process of machining. Although Professor Kyle referred mainly during the address to non-ferrous castings, he said that

*Reporter, New England Foundrymen's Association, and Chemist, Hunt-Spiller Manufacturing Co.

there was at present very active research going on in the way of development of die casting of cast irons. He went on to relate that zinc base materials are most suitable for die castings because they give longer die life, they can be cast at lower temperature and they are cheap.

Ontario Chapter Studies Effects of Alloys

By G. L. White*, Toronto, Ont.

APPROXIMATELY ninety were in attendance at the February meeting of the Ontario chapter at Rock Garden Lodge, Hamilton, February 28, to hear E. K. Smith, Electro Metallurgical Co., discuss alloy additions to gray iron, malleable iron and steel castings. Chairman D. M. Storie, Fittings, Ltd., Oshawa, Ont., presided.

Mr. Smith indicated that he intended to concentrate principally upon the use of alloys in trouble shooting. In dealing with the alloy additions, the speaker referred to them by grouping them under the properties which they conferred, such as resistance to heat, wear, corrosion and others.

The paper was received with great enthusiasm as was shown in the discussion that followed its presentation.

*Westman publications, and Secretary-Treasurer, Ontario chapter.

Past Chairman Talks at Southern California

By W. F. Haggman*, Huntington Park, Calif.

PAST Chapter Chairman A. G. Zima, International Nickel Co., Los Angeles, lectured before some 100 members at the Los Angeles Elks Club, February 27, on "Development of Modern Alloyed Cast Irons." Chapter Chairman James Eppley, Kinney Iron Works, Los Angeles, presided over the evening affair.

Mr. Zima's talk dealt chiefly with a review of the functions of various elements entering into the composition of cast irons. The alloying elements were classified into two groups: namely, the graphitizers and carbide formers, and each one was discussed briefly. The speaker emphasized that composition alone is not a criterion for evaluating the properties or usefulness of cast iron, but that certain inherent characteristics are imparted to the material by melting and pouring practice, ladle inoculation and other practices. This was illustrated by data comparing irons of almost identical composition but possessing widely divergent mechanical properties.

The moving picture, "Sports Parade," was shown to members.

*Foundry Specialties Co., and Secretary, Southern California chapter.

Vice President Simpson Speaks at Western New York

By Eliot Armstrong*, Buffalo, N. Y.

H. S. SIMPSON, A.F.A. vice president, and president, National Engineering Co., Chicago, Ill., attracted one of the largest audiences to attend a Western New York meeting, March 7. The meeting was guided by Chapter Chairman John C. McCallum, McCallum Hatch Bronze Co., Inc., Buffalo.

Mr. Simpson presented his very constructive views on "The Marketing of Cast Metal Products" and from the discussion and comment following, it is very evident that this is a large subject upon which all too few casting makers agree. It very definitely proved itself a subject for more study and more consideration, and those present agreed with Mr. Simpson that it could profitably be a subject for chapter meetings at recurring intervals.

Prior to the talk by Mr. Simpsan, C. E. Hoyt, A.F.A. Executive Vice President, gave a brief resume of Association activities. W. W. Rose, Executive Vice President, Gray Iron Founders' Society, also was on hand and gave a brief picture in words of the defense situation as it relates to cast metal products. The members also saw the automotive industry's newest film "Singing Wheels."

*Inter Allied Foundries of New York State, and Secretary, Western New York chapter.

Sand Control at Cleveland

By Pat Dwyer*, Cleveland, Ohio

APPROXIMATELY 125 members and guests attended the meeting of the Northeastern Ohio chapter March 13, at the Tudor Arms, Cleveland, where Chairman Ray Fleig, Smith Facing & Supply Co., urged renewed activity of the membership committee. J. G. Goldie, foundry instructor, Cleveland Trade School, presented a progress report on the annual apprenticeship contest in molding and patternmaking. R. Louis Towne, Surface Combustion Co., Toledo, told many amusing anecdotes to illustrate points in an address on the importance of cultivating certain mental attitudes. A technical paper, "Sand Control as Practiced in a Malleable Foundry," was presented by Elmer C. Zirzow, National Malleable & Steel Castings Co., Cleveland. Illustrated by several slides the paper covered the methods of sand control as practiced at the plant with which the author is connected.

*Engineering Editor, *The Foundry*.

Metropolitan Chapter Closes Successful Casting Clinic

THE "casting clinic" for designers and users of castings will come to a successful conclusion April 2 and will conclude the popular winter series of lectures sponsored by the Metropolitan chapter.

This educational course was started after the previous series of lectures, offered late last year, were received so favorably by chapter members who wanted further practical foundry information that the chapter was forced to make up another course. These talks were presented in a very fundamental manner so that apprentices and

shop men could understand and use the information being relayed to them. The lectures were planned to give designers and builders of metal equipment a better understanding of the characteristics of castings so they may more intelligently take advantage of castings in such constructions as adapt themselves to use as cast parts. Foundrymen found these talks a source of latest information on new processes and methods and described by acknowledged authorities in the various fields.

Southern and Northern California Chapters Plan Regional Conference

THE Southern and Northern California chapters, American Foundrymen's Association, have collaborated to sponsor a two day regional meeting for Pacific foundrymen in conjunction with the A.S.M. Western Metal Congress. The dates of the regional A.F.A. meeting have been set for Thursday, May 22, and Friday, May 23. All meetings are to be held in the Biltmore Hotel, Los Angeles.

Robert Gregg, Reliance Regulator Co., Alhambra, is chairman of the Foundry Day program. Six outstanding Eastern speakers have been procured for this two day meeting. The schedule of events and sessions are listed in the box shown at the bottom of this page.

Phillips and Morken at Quad City Meetings

By J. Morgan Johnson*, Moline, Ill.

THE February meeting of Quad City chapter was a joint meeting held with the American Society for Metals, Tri-City chapter, at the Fort Armstrong Hotel, Rock Island, Ill. There were more than 125 at the dinner and more members came in for the lecture when J. D. Graham, A.S.M. Tri-City chapter chairman, called the meeting to order.

The technical session was opened by a coffee talk by Brigadier General Norman F. Ramsey, Commanding Officer, Rock Island Arsenal, concerning the operations carried on at the present time at this plant. Manufacturing methods and products made during this time of defense production were discussed.

The main speaker was Garnet P. Phillips, metallurgist, International Harvester Co., Chicago, Ill. He discussed the subject of producing automotive castings. The various types of castings used in automotive work were mentioned, the alloying of castings, the heat treatment and the testing necessary before being placed in the completed product.

The January meeting, with some 55 members in attendance, heard Carl H. Morken, Carondelet Foundry Co., St. Louis, Mo., speak about "Electric Furnace Cast Iron." The various types of work that could be done with this furnace were explained. The furnace operations necessary to secure irons calling for certain specifications were discussed. With the use of slides the speaker showed many varied types of castings, both large and small, data as to their properties and construction and the advantages of using electric furnaces in foundries doing similar work in the foundry industry.

March Meeting

The chapter meeting of March 17 was held at the Blackhawk Hotel, Davenport, Iowa. In the absence of Chapter Chairman Nate Lesser, Vice Chairman A. H. Putnam presided. The technical speaker of the evening was E. K. Smith, Electro Metallurgical Co. Mr. Smith, in discussing the use of alloys in cast iron, brought out the importance of knowing the effect that each type of alloy produced.

*Tri-City Manufacturers Assn., and Secretary-Treasurer, Quad City chapter.

Southern and Northern California Regional Conference

Biltmore Hotel, Los Angeles, Calif.

Tentative Program

Thursday, May 22

9:30 A. M.—Dr. C. H. Lorig, Battelle Memorial Institute, Columbus, Ohio, *"Steel Castings"*
10:45 A. M.—E. K. Smith, Electro Metallurgical Co., Detroit, Mich., *"Foundry Control Methods in Making Uniform Cast Iron"*

Friday, May 23

9:30 A. M.—D. B. Reeder and L. N. Ludwig, Electro Metallurgical Co., New York, N. Y., *"Steel Castings"*
10:45 A. M.—E. L. Bartholomew, United Shoe Machinery Corp., Beverly, Mass., *"Heat Treatment of Cast Iron"*
6:30 P. M.—Dinner
8:15 P. M.—V. A. Crosby, Climax Molybdenum Co., Detroit, Mich., *"New Information on Effects of Alloys in Cast Iron"*
9:30 P. M.—C. W. Briggs, Steel Founders' Society of America, Cleveland, Ohio, *"Steel Foundry Molding Sands"*

Carmody at Detroit

By O. E. Goudy*, Detroit, Mich.

THE February meeting of the Detroit chapter was held at the Detroit-Leland Hotel, February 20.

The guest speaker of the evening was Elmer J. Carmody, metallurgist, C. C. Kawin Co., Chicago, who spoke on "Gates and Risers."

The many problems in gating were discussed in detail, and also, mention was made that too often not enough thought is given to the particular job in advance.

As part of Mr. Carmody's discussion, he covered the problem of gating as it deals with the new high strength irons.

*Kelsey Hayes Wheel Co., and Reporter, Detroit chapter.

Abstracts

NOTE: The following references to articles dealing with the many phases of the foundry industry, have been prepared by the staff of *American Foundryman*, from current technical and trade publications.

When copies of the complete articles are desired, photostat copies may be obtained from the Engineering Societies Library, 29 W. 39th Street, New York, N. Y.

Aluminum Castings

AIRCRAFT. *"Casting of Cylinder Heads,"* by W. A. Phair, *The Iron Age*, vol. 147, no. 4, January 23, 1941, pp. 37-40. The power that can be generated in an aircraft cylinder depends in a large measure upon the ability of the cooling fins to dissipate the tremendous heat generated during combustion. With these narrow fins, however, the successful casting of the heads requires a nicely balanced combination of the most modern machine work and very skillful handwork. These fins, in the aggregate, account for 3,000 sq. in. of cooling surface and range from 1 to 3½-in. in height. The fins are set on 7/32-in. centers and taper from 0.06-in. at the top to 0.09-in. at the point where the fin joins the main body of the head. The drag section contains the most work, as the fin voids are filled by hand, and the hand work employed in setting 750 nails between the fins to support the long fin sand core is tremendous. The aluminum alloy used is a special Wright alloy containing copper, nickel, manganese and smaller amounts of chromium and titanium. This is melted in five oil-fired furnaces of 1,000-lb. capacity. Experience has taught them that the pouring temperature is a very critical factor in keeping foundry losses to a minimum. Care is taken to pour between 1410 and 1420°F. (Al.)

Aluminum Alloys

EUROPEAN PRACTICES. *"European Practice in Aluminum Piston Alloys,"* by Ernest V. Pannell, *Metal Progress*, vol. 39, no. 1, January, 1941, pp. 60-64. Piston alloys, as studied in this article, fall broadly into three groups: (a) aluminum-copper (10 per cent copper or over), (b) aluminum-silicon (12 per cent silicon or over and (c) aluminum-copper-nickel (with 5 per cent or less copper). In the copper alloy series, the British authorities changed their compositions while maintaining the use of copper, gradually increased the percentage from 7 to 12 and later to 14, adding 1 per cent of manganese to their piston charges. This alloy was known as the "14:1." While the copper-manganese piston alloy was developed in England, it has largely gone out of use there. Germany, however, has taken an interest in this type of alloy and has increased the copper to 15 or 16 per cent, the manganese to as much as 6 per cent, and iron about 1 per cent. This alloy Brinells 160 cold and 98 at 500°F. In England, some pistons have been produced in a self-hardening copper alloy of good bearing properties. It contains up to 10 per cent copper with additions of magnesium, nickel and chromium, Brinells 145 when cold and shows little softening at operating temperature. Because of the cost and time involved in heat treatment, quenching and age hardening, there is a tendency in Britain toward self-hardening alloys of this type which require only a normalizing treatment. The "alpax" silicon alloy, found in 1920, had very useful advantages, as it was ideal for permanent mold casting and it possessed a coefficient of expansion some 20 per cent lower than other types of alloy. However, it was deficient in hardness, had a very low proportional limit and a high degree of friction in service. Better hardness, machining and running properties have been obtained by increasing the silicon content to over 20 per cent and also by the addition of elements which increase the hardness and make the alloys responsive to heat treatment. Silicon alloys suffer from two faults: low conductivity and relatively high friction. "Y-alloy," containing 4 per cent copper, 2 per cent nickel and 1.5 per cent magnesium, was the first cast aluminum alloy subjected to thorough metallurgical investigation. Tensile strength of this alloy, when cast in permanent molds and heat treated, is in the neighborhood of 40,000 lb. per sq. in., and at service temperature, 500°F., is still over 22,000 lb. per sq. in. For the same temperature range, Brinell hardness falls from 100 to 65. Some authorities say it runs from 120 to 75 when hot, depending on the type and duration of heat treatment. Two points stand out about "Y-alloy"; the temperature of treatment is higher than that for a straight copper alloy, which makes it possible to run the alloy hotter without annealing; and this metal has a remarkable recovery value so that, although some temporary annealing may take place, the alloy hardens again at a lower temperature. "Y-alloy" is not easy to cast; it has a tendency to hold gas if the heat is kept molten too long, the magnesium may become partly oxidized, leading to black specks, and trouble is sometimes experienced with intercrystalline cracks. Gas occlusions have proved the most troublesome, and have been most effectively cured by cooling a gased heat in the pot down to the solidus temperature, then rapidly heating up again and pouring. When poured, the metal should not be stirred and gates should be designed to give a quiet, easy flow into the mold. (Al.)

Apprentice Training

DEFENSE. *"Defense Program Spurs Apprenticeship in Foundries,"* by William F. Patterson, *The Foundry*, vol. 69, no. 1, January, 1941, pp. 34-36, 104-105. The National Defense Program has shown numerous foundries how they have lagged in setting up an adequate apprentice program to meet the present demands for skilled workers. Through the committee work of numerous organizations, such as A.F.A., apprenticeship has been maintained but now it is up to the foundries to set forth plans that will guide their future—this will come through starting a good apprenticeship course in their plants. Figures show that more training is needed to take care of the situation and so the federal government has stepped in, hoping that they may aid the cause. The government has even ventured to pay part of the expense for a company to train apprentices. They have gained the confidence of industry and are receiving gratifying results for their work. They have set up programs, taught labor co-operation and other useful lessons connected with apprentice work.

Cast Bronzes

ZIRCONIUM. *"Beneficial Effects of Zirconium in Cast Nickel-Silicon Bronzes,"* by F. R. Hensel, E. I. Larsen and A. D. Doty, *Metals Technology*, vol. 7, no. 8, December, 1940, pp. 1-4. The information presented in the paper is primarily a resume of factual data. The research work concerning the theoretical explanations is not complete. As mentioned in the paper, the microstructure of the straight nickel-silicon bronzes indicates that the extreme brittleness is in some way connected with the type and location of the precipitate found during aging after quenching. Possibly the presence of zirconium—which in itself, or in combination with another element, can be used as a precipitation-hardening constituent in copper—may alter the precipitate sufficiently to eliminate the inter-crystalline weakness and general embrittlement found in cast nickel-silicon bronzes. Furthermore, zirconium is a most efficient degasifying agent, producing castings free from gases usually occluded within the grain boundaries. It seems quite possible that occluded gases may be the cause of incipient cracks during heat-treating. Another advantage of the zirconium addition was the effect on the formation of nuclei by zirconia, resulting in a finer grain structure. (Al.)

Cast Iron

STRUCTURAL ANALYSIS. *"Structural Analysis of Gray Cast Iron,"* by D. J. Reese and R. A. Flinn, *The Foundry*, vol. 69, no. 1, January, 1941, pp. 38-40, 106-108. The structural analysis of a casting may be divided into three parts. First, the casting fracture may be studied with the unaided eye or from a radiograph and large discontinuities in the structure, such as blow-holes, shrinks, unduly large dendrites, may be found. Next a more close inspection is made of the casting with a metallurgical microscope of the general character of the structural cells or grains. The last method involves use of the x-ray to study the atomic structure. Each of these methods is discussed in detail. The authors show the dependence of various casting properties, such as tensile strength, transverse strength, etc., on a few fundamental structual relationships. The authors explain the necessity for considering structual modifications produced by any

alloy before embarking on a long and expensive program of routine testing. (C.I.)

Centrifugal Casting

LOW MELTING POINT ALLOYS. *"Composition Molds for Castings Novelties,"* by Frank K. Smith, *Metal Progress,* vol. 39, no. 1, January, 1941, pp. 72-73. This is a review of a newly developed centrifugal process for the manufacture of jewelry parts and novelty items. They are cast of a low melting point alloy of tin directly in the rubber molds, the rubber being able to stand successfully the molten alloy for a large number of casts. Information is given on how molds are produced by placing models of a suitable material between two discs of solid compound. Comment is also made on how the casting is done. (C.)

Electropolishing

PRACTICE. *"Electropolishing," The Iron Age,* vol. 146, no. 26, December 26, 1940, pp. 23-30. This is a summary of the electropolishing symposium session held at the October 23 A.I.M.E. meeting in Cleveland. It gives an abridged account of the discussions and commercial practices of electropolishing methods as being done by some companies. Comments are made on electropolishing operations carried out by the W. S. Tyler Co., Aluminum Company of America, Western Union Telegraph Co., United States Steel Corp., National Bureau of Standards, Bell Telephone Laboratories, International Nickel Co., and the Rustless Iron & Steel Corp. Of significant importance is the inspection device, described by H. W. Russell, Battelle Memorial Institute, that can be used on fabricated articles, large or small, and even on rough castings. A detailed account of this piece of equipment is made. (El.)

SPECIMENS. *"Metallographic Examination,"* by F. Keller, *The Iron Age,* vol. 147, no. 2, January 9, 1941, pp. 23-26. From the results obtained at the Aluminum Research Laboratories it is felt that the use of electrolytic polishing for preparing specimens for metallographic examination offers some very interesting possibilities. Further developments in technique will undoubtedly result in improved methods for obtaining satisfactory metallographic finishes, rapidly and consistently. It is also possible that some of the various electrolytic methods which are being developed to polish metals commercially can be adapted to polishing metallographic specimens. (T.)

Fluidity

TEMPERATURE MEASUREMENTS. *"Fluidity and Temperature Measurements in Steel Melting Practice," Industrial Heating,* vol. 8, no. 1, January, 1941, pp. 28, 30, 42-43. Methods of measuring fluidity and temperature were reviewed by Dr. C. H. Lorig, research metallurgist, Battelle Memorial Institute, at the joint meeting of the Steel Founders' Society of America and the Electric Metal Makers Guild, held in Columbus, O. Dr. Lorig points out in his article the necessity for proper temperature and fluidity for the production of quality castings. Recent efforts to improve the accuracy of measurement of these properties are discussed along with the necessity of standardizing the methods. (S.)

Furnaces

HEAT TREATING. *"Small Furnace with Panel Burners,"* by C. B. Williams, *Metal Progress,* vol. 39, no. 1, January, 1941, pp. 51-53. The heat treating furnace described in this article has a 36x48-in. hearth, and 30-in. clearance from hearth to roof. It is lined with 9-in. insulating firebrick. The brick floor slab is 13½-in. thick, and on this are placed 4-in. cubical blocks on 12-in. centers to support a vented alloy hearth plate. Furnace bindings are ½-in. steel plate at bottom, 3/8-in. at front and rear and ¼-in. at sides, and 3-in. channels in pairs as buckstays. There are seven radiant combustion burners in the furnace, 9x18-in. in area, three in each side wall, and one in the rear wall, placed with long dimension horizontal. Details of gas and air supply and maximum capacity the supply system will deliver also are discussed. This furnace is said to be very economical to operate. Burners are claimed to produce a clean, even heat. (F.)

Inspection

DETECTING DEFECTS. *"Electrical Detection of Flaws in Metal,"* by Horace C. Knerr, *The Metal Industry* (London), vol. 47, no. 25, December 20, 1940, pp. 486-489. The author describes a new method for the non-destructive testing of welded or seamless tubes, bars and other articles of both ferrous and non-ferrous metals, generally cylindrical in form. The method, it is claimed, is applicable to non-magnetic as well as to magnetic material. (N.F.)

Malleable

CASTING DESIGN. *"Design of Malleable Iron Castings,"* by James H. Lansing, *The Foundry,* vol. 69, no. 1, January, 1941, p. 41, 119. In this article, a few recommendations are given to men who design malleable iron castings and want to know what may be done in design of such castings to promote the development of the most satisfactory product. The author discusses numerous design factors, such as fillets, heavy sections, uniform casting thickness, annealing pots, etc., and comments on the necessity for co-operation between the engineer and the foundryman. These recommendations, when it is possible for engineers to consider them, will aid in the production of the most satisfactory castings from the standpoint of quality, service and economy. (Ma.)

PRODUCTION. *"Malleable Iron,"* by H. F. Davis, *Canadian Metals and Metallurgical Industries,* vol. 3, no. 12, December, 1940, pp. 304-307. The manufacture of malleable iron is divided into two parts: the production of white iron castings and annealing those castings to make them malleable. Herein a discussion is evolved around the types of malleable iron manufactured, melting and furnace operations, metal mixture, annealing and structures and properties are described. (C.I.)

Micro-Specimens

MOUNTING. *"Mounting of Micro-Specimens,"* by D. McPherson, *The Metal Industry* (London), vol. 47, no. 20, November 15, 1940, p. 392. This article describes a simple apparatus which, it is hoped, will enable even the smallest laboratory to enjoy the benefits of mounting their micro-specimens in a plastic. The apparatus consists essentially of a mold in which the specimen and molding material can be placed, an electric heater for the mold, and a plunger working in the mold for compressing the molding material around the specimen. The apparatus constitutes a self-contained unit that can be utilized in any simple press or other machine which is capable of exerting the pressure required for molding. (Te.)

Mold

VALVES. *"Barrel-Type Valve Lifters Molded in Green Sand,"* by E. C. Hoenicke, *The Foundry,* vol. 68, No. 10, October, 1940, pp. 42-45, 107-109. As a large production cast part, the barrel-type valve lifter is a recent development. Its particular interest to the foundry industry is that it places another cast part in functional operation in modern internal combustion engines. Design of the barrel-type lifter presented a distinct and unique problem to the foundry, as can be seen in the illustrations shown. Only after the study of its vital functional operation that the casting problem involved in its production becomes apparent. The varying conditions of loading to which the valve lifter is subjected is discussed. Thicknesses of side walls and tolerances for this type of casting are described. The various factors which cause variations in metal also are pointed out. The all-green sand method of molding was the complete solution to making castings with the smallest amount of defects. This particular method involved the use of a three-part mold; a cope, cheek and drag. Each one's purpose in this system is commented on in detail. The article is concluded by giving information on the high cost of pattern equipment and how it was remedied by using die cast patterns of a regular commercial zinc-base white metal shown in this paper. (Mo.)

Molds

GLASS. *"Metal Molds for Glass Products,"* by A. H. Dierker, *Engineering Experiment Station News,* vol. 12, no. 5, December, 1940, pp. 8-14. Quality production of glassware is done by means of automatic or semi-automatic machines. A carefully measured quantity of viscous glass is dropped into a mold of the required shape and then forced against the sides of the mold by the mechanical pressure of a plunger. Glass is dropped into the mold at a temperature somewhere between 1850°F. and 2200°F. and the mold is often used as many as 8 times a minute. To prevent overheating the mold may be cooled by a blast of cold air between each operation. The author outlines the materials used to make metal molds and then discusses the three chief troubles encountered in the use of glass molds as: (1) cracking, (2) sticking, and (3) "dirty" ware, in detail. (Mo.)

Non-Ferrous

GATING. *"Gating Non-Ferrous Castings Is Important,"* by N. K. B. Patch, *The Foundry,* vol. 68, no. 12, December, 1940, pp. 38-39, 108-111. A gate has two distinct functions, it leads the metal into the mold thereby permitting the mold to be filled and leads the molten metal to the necessary risers so that fluid metal is available to fill the voids caused by shrinkage. In gating, provision must be made so that the proper supply of metal is led to the risers and if the risers are to function in the most satisfactory manner, they must be fed with hot metal. Comment is made on the pouring method for high shrinkage alloys. The writer also points out that the space between gate and riser should provide adequate connection so that the metal will not be restricted. The shape of the riser is important and the author shows that a square or rectangular riser tends to cool faster than a round riser because the square riser

offers a maximum area for radiation of heat as compared with the volume of metal it holds. The paper is concluded by discussing various gating systems, such as pop gates, horn gates and other forms of gates. (N.F.)

Steel

DEOXIDIZERS. *"Why Deoxidizers Are Necessary,"* by C. E. Sims, *The Foundry*, vol. 69, no. 1, January, 1941, pp. 37, 109-111. The role of enemy No. 1 in steel metallurgy rapidly is being transferred to the shifty element hydrogen, with nitrogen probably in No. 2 position. Oxygen alone in steel cannot cause unsoundness. Pure iron can be melted and saturated with oxygen, yet when it freezes it will be sound and free of gas pockets. Rimming steel gives a good example of how FeO is greatly increased during cooling and solidification and results in a great increase in its activity. To prevent this occurrence the activity of the oxygen must be lowered or the quantity of FeO decreased. This is accomplished through the use of a deoxidizer such as manganese or silicon. Manganese is considered and, in a small way, is a deoxidizer. Excess silicon is necessary to reduce FeO to a sufficiently low content. Silicon will take FeO down to about 0.01 per cent. Aluminum undoubtedly is the strongest of the common deoxidizers. Even the slightest excess will reduce FeO content to 0.002 per cent. (S.)

April Chapter Meeting Schedule

April 1

Michiana
Hotel LaSalle, South Bend, Ind.
"Home Talent Nite"

✦ ✦

April 4

Western New York
Hotel Touraine, Buffalo
R. K. GLASS, Republic Steel Co., Buffalo
"Heat Treatment"

✦ ✦

April 7

Central Indiana
Washington Hotel, Indianapolis
R. L. LEE, The Liberty Foundry, Inc., Wauwatosa, Wis.
"Foundry Cost Methods"

✦

Western Michigan
Hotel Occidental, Muskegon
Ferrous Speaker—G. P. PHILLIPS, International Harvester Co., Chicago.
"Cast Iron Production Problems in the Automotive Foundry"
Non-Ferrous Speaker—W. B. GEORGE, R. Lavin & Sons, Chicago
"Practical Non-Ferrous Foundry Operation"

✦ ✦

April 8

Cincinnati District
Hotel Alms, Cincinnati
WILLIAM ROMANOFF, H. Kramer & Co.
"Brass Foundry Practice"

✦

Northern Illinois-Southern Wisconsin
Hotel Freeport, Freeport, Ill.
C. B. TEETER, Refractory Mica Products Co.
"Refractories"

✦

April 9

New England Foundrymen's Association
Engineers' Club, Boston
JOHN LUDWIG, JR., Electro Metallurgical Sales Corp.

Metropolitan
Essex House, Newark, N. J.
VINTON HIGBE, Atlantic Casting & Engineering Co.
"Plaster Molds for Precision Non-Ferrous Castings"

✦ ✦

April 10

Northeastern Ohio
Cleveland Club, Cleveland
E. J. CARMODY, C. C. Kawin Co., Chicago, Ill.
"Gates and Risers"

✦

St. Louis District
Hotel DeSoto, St. Louis
L. H. CAMPBELL, JR., Brigadier General, U. S. Army, Asst. Chief of Industrial Facilities

✦ ✦

April 11

Central New York
Hotel Onondaga, Syracuse

✦ ✦

April 14

Chicago
Chicago Towers Club
W. G. REICHERT, American Brake Shoe & Foundry Co.
"Effect of Sand on Casting Finish"

✦ ✦

April 17

Detroit
Flint, Mich.

✦ ✦

April 18

Birmingham District
Tutwiler Hotel, Birmingham
ROY E. LEE, Newbury Mfg. Co., Talladega, Ala.
"Gates and Risers"

✦

Philadelphia
Girard College
OWEN D. EVANS, Supt. of Mechanical School, Girard College
Tour of buildings and grounds.

Wisconsin
Schroeder Hotel, Milwaukee
Election of Officers

✦

Northern California
Lake Merritt Hotel, Oakland
Steel Speaker—CHAS. HOEHN, JR.
Iron Speaker—JAMES L. FRANCIS
Non-Ferrous Speaker—F. A. MAINZER

✦ ✦

April 21

Pittsburgh Foundrymen's Association
Fort Pitt Hotel
E. J. BUSH, Washington Navy Yard
"Aspects of Non-Ferrous Foundry Problems in Connection With National Defense Program"

✦

Quad City
Fort Armstrong Hotel, Rock Island, Ill.
J. A. GITZEN, Delta Oil Products Co., Milwaukee
"Cores, Core Binders and Core Washes"

✦ ✦

April 24

Southern California
Elks' Club, Los Angeles

✦ ✦

April 25

Chesapeake
"Information Please"

✦

Ontario
Rock Garden Lodge, Hamilton, Ont.
Group Meetings: Gray Iron—R. C. STEWART AND W. SULLIVAN
Malleable—J. F. MCFADYEN
Non-Ferrous—S. R. FRANCIS

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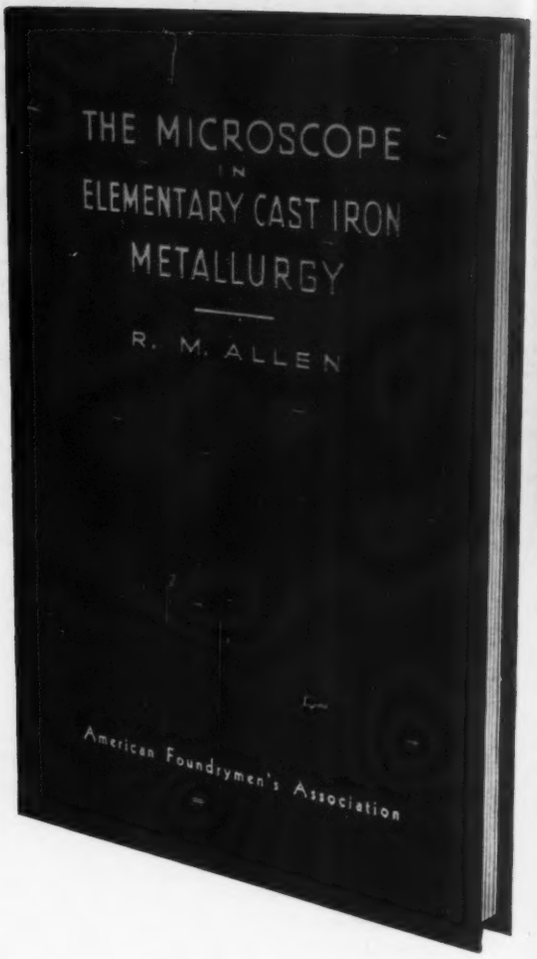

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